FINAL STATEMENT OF REASONS

FOR

PROPOSED BUILDING STANDARDS

OF THE

OFFICE OF THE STATE FIRE MARSHAL

REGARDING THE ADOPTION BY REFERENCE OF THE

2006 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC)

WITH AMENDMENTS INTO THE 2007 CALIFORNIA BUILDING CODE

CALIFORNIA CODE OF REGULATIONS TITLE 24, PART 2.

The Administrative Procedure Act requires that every agency shall maintain a file of each rulemaking that shall be deemed to be the record for that rulemaking proceeding. The rulemaking file shall include a final statement of reasons. The Final Statement of Reasons shall be available to the public upon request when rulemaking action is being undertaken.

Health and Safety Code Section 18930 is part of the Building Standards Law that includes a nine-point written analysis that is required to be submitted by the Office of the State Fire Marshal for approval by the California Building Standards Commission prior to the adoption of building standards submitted by the Office of the State Fire Marshal. Under subpart (d) the Commission must give great weight to the determinations and analysis of the Office of the State Fire Marshal for each of the nine-point criteria submitted. Any factual determination used in the nine-point analysis by the Office of the State Fire Marshal shall be considered conclusive by the Commission unless the Commission specifically finds and sets forth in its reasoning in writing that the factual determination is arbitrary and capricious or substantially unsupported by the evidence considered by the Office of the State Fire Marshal.

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INTRODUCTION TO FINAL STATEMENT OF REASONS

SFM Commitment

California's first partnership with the International Building and Fire Codes is almost complete. During this past year, the Office of the State Fire Marshal (OSFM) has been working tirelessly to bring you the best set of building and fire code proposals possible. Several key things are important to remember:

1. The OSFM is committed to this adoption and believes strongly in the value of the ICC code process and the overall quality of the I-Codes.

2. The OSFM has taken extraordinary measures to ensure that this package represents the best in fire and life safety considerations, stakeholder involvement and economic considerations.

3. Both Fire and Building Code professionals have worked in concert under consensus-based guidelines to develop this package which now enjoys wide support.

This document is intended to be an overview for the entire submittal package and provides both the bigger picture perspective as well as specific analysis. Other portions of the submittal package such as "Response to Comments" and the Nine-Point Criteria refer back to it at times. The five main sections of this "Introduction" are:

1. IBC History
2. SFM Philosophy
3. Reasons for Proposed Amendments
4. Reasonable Solutions and Impacts
5. Final Conclusion

The adoption of an entire new set of building and fire codes is a complex task. The OSFM, along with the other state agencies, the Building Standards Commission and its Committees, and stakeholders have worked together this past year to produce this package. This document will clearly demonstrate that the OSFM proposals are necessary, reasonable, and deserve your support.

1. IBC History and Philosophy

The International Building Code (IBC) was created in the late 1990's when the three regional 'legacy' codes were merged into a single model code. This extremely complex task took several years and the first edition of the IBC was published in 2000. Since that time, growing numbers of jurisdictions across the country have adopted it, modified it, and called it their own.

The concept of a single building code for the nation is grounded in the economic efficiency gained by unified design and building criteria. It is cheaper to create, maintain, design and build to and enforce a single set of building standards. While a worthy concept, it must be recognized that this is a goal and not an absolute. No responsible city or state adopts a model code without thoroughly analyzing their geographic, climactic, and topographic characteristics as well as their public expectation of acceptable risk, demographics, economic conditions, public safety infrastructure and loss history.

We have exercised due diligence in this analysis and the OSFM is submitting for your approval a set of amendments to the IBC that we believe adequately addresses California's:

1. Statutory Mandates for Fire and Panic Safety

2. Natural Hazards (Seismic, Flood, Fire, Wind)

3. Life Safety and Property Loss

4. Vulnerable Populations (Persons with Disabilities, Non-English Speaking, Aged/Youth, Special Needs)

5. Social Perceptions of Acceptable Risk

2. SFM Adoption Philosophy

At the outset of this code adoption project (September 2005), State Fire Marshal Ruben Grijalva outlined a detailed guidance document that served as a foundational cornerstone for the OSFM amendment process. The key concepts from that document are still in effect today and include:

> *"It is the intent of the OSFM to utilize a "holistic" approach in evaluating the IBC vs. UBC and IFC vs. UFC in terms of the level of protection provided by these model codes. This approach would offer that both codes, while providing a minimum level of fire/life safety in distinctly different manners, when viewed "holistically" could be seen as substantially equivalent. One code's reliance on the performance of fire-extinguishing systems and more performance-based approach, as opposed to prescribed built-in fire-resistive features and intentionally redundant fire protection provisions may make side-by-side comparisons difficult for even the most technically proficient professionals based on differing strategies of fire and life safety protections.*
>
> *This approach requires that the comparison and subsequent amendment of the IBC to incorporate UBC or CBC provisions be done in a deliberate and thoughtful manner. Another result of this approach could be fewer State amendments, as the decision of which existing amendments to carry over could be made on a case-by-case basis. It also emphasizes a need to either participate in, or, at the very least, closely monitor development of the model code in order to assure the future safety of California.*
>
> *Stakeholder participation and input will be requested throughout the entire process. The development and review process will include several levels of review. A core workgroup will include representatives from state agencies with statutory authority, California Building Officials Association and California Fire Service. The intent is that the first draft will be developed by those without a financial interest in the outcome of the code. Subsequent review(s) will incorporate design professionals and industry representatives."*

In addition, SFM Grijalva also directed that each and every amendment be reasonable, effective, and "make a difference".

The entire OSFM package development has been an extremely open process from November 2005 to today. We organized a Core Committee of Fire and Building Officials, and State Agency representatives that served as the final voting review committee. Each occupancy classification was assigned to a Work Group with designated leaders and open membership to AHJ's, industry or interested parties. (See Appendix A – Core and Work Group Leaders)

All meeting locations, agendas and minutes were published on the SFM website where they remain today at *http://osfm.fire.ca.gov/CodeAdoptionProcess.html*. Stakeholder Mailing Lists were constructed and three stakeholder meetings were conducted around California in January, February and March, 2006. Agendas, minutes, and recorded comments were also provided on the website. Finally, while the predominant number of amendment proposals came from the work groups, any single individual could submit a proposal which was reviewed by the Core Committee.

All monographs and Express Terms were published on the web page as they developed and the overall approach from the OSFM was to engage continuously with affected stakeholders and seek mutually acceptable compromises. From the first drafts to today's submittal, over 90% of items at issue have been resolved. All in all, the process duplicated almost identically that used by the ICC and was open, communicated, and documented for public access. (See Appendix B – Schedule of Key Events)

Concept of Acceptable Risk

Inherent in all discussion of public safety is the concept of acceptable risk. The *ICC Performance Code for Buildings and Facilities (2006)* is a comprehensive guidance document that details a structured approach to risk analysis relative to building safety and has been used by the OSFM in constructing a rational approach to level of risk based on risk and hazard factors, and level of community importance of the building.

Some of the key considerations include:

302.4.1 Nature of the hazard. The nature of the hazard, whether it is likely to originate internal or external to the building or facility, and how it may impact the occupants, the building or facility, and the contents.

302.4.2 Number of occupants. The number of persons normally occupying, visiting, employed in, or otherwise using the building, facility, or portion of the building or facility.

302.4.3 Length of occupancy. The length of time the building or facility is normally occupied by people.

302.4.4 Sleeping characteristics. Whether people normally sleep in the building.

302.4.5 Familiarity. Whether the building or facility occupants and other users are expected to be familiar with the building or facility layout and means of egress.

302.4.6 Vulnerability. Whether a significant percentage of the building or facility occupants are, or are expected to be, members of vulnerable population groups such as infants, young children, elderly persons, persons with physical disabilities, persons with mental disabilities, or persons with other conditions or impairments that could affect their ability to make decisions, egress without the physical assistance of others or tolerate adverse conditions.

302.4.7 Relationships. Whether a significant percentage of building or facility occupants and other users have family or dependent relationships.

Along with the above risk factors, the social and behavioral factors of the occupants must also be considered when determining acceptable risk. The *ICC Performance Code for Buildings and Facilities (2006)* defines these values for each occupancy type.

Following are examples of the **Assembly** and **R-2 (Multi-Tenant Residential)** Occupancy Risk Factors.

> **A103.1.1 Assembly.** A building, structure or portion of a building or structure in which persons gather for purposes such as civic, social or religious functions, recreation, food and drink consumption, or awaiting transportation. Unless otherwise modified under a specific sub-use classification, occupants, visitors and employees shall be assumed to be awake, alert, predominantly able to exit without the assistance of others, and unfamiliar with the building or structure. Vulnerable populations of many types may be expected to be present; however, the buildings are normally occupied for only short periods of time. It shall be assumed that:
>
> 1. Risks of injury and health assumed by occupants and visitors during their use of the building or structure are predominantly involuntary.
> 2. Public expectations regarding the protection afforded those occupying, visiting or working in an assembly, building, structure or portion thereof are high.
>
> **A103.1.8.2 R-2, Multi-tenant residential.** A residential occupancy where the occupants are primarily permanent in nature and that contains more than two dwelling units. It shall be assumed that:
>
> 1. Occupants and visitors are not awake, alert, or able to exit without the assistance of others.
> 2. Occupants and visitors are familiar with the building or structure.
> 3. Risk of injury and risk to health assumed by occupants and visitors during their use of the building or structure are predominantly voluntary.
> 4. Public expectations regarding the protection afforded those occupying, visiting, or working in the R-2 residential building, structure, or portion thereof are neither unusually high nor unusually low.

These risk factors form a foundation for analyzing the building and its occupancy, then assigning it a Performance Category I-IV. Examples are as follows:

Category I Buildings -	Low risk, Agricultural, Storage, or Temporary Facilities.
Category II Buildings -	All buildings except I, III, or IV buildings
Category III Buildings-	Buildings that represent a substantial hazard to human life such as assembly with more than 300 people, educational, institutional, jails, moderate hazard class, and non-surgical or emergency health care facilities.
Category IV Buildings-	Essential Services buildings such as police and fire stations, communication centers, hospitals, fire suppression water treatment facilities, high hazard class occupancies, and any ancillary facility supporting fire suppression infrastructure.

Our amendment package appropriately targets the Category III and IV occupancies for a higher level layered fire protection based upon these ICC recommendations as applied to our seismic conditions in California.

Amending the Model Code

The OSFM has received opposition comments and criticism for amending the model code and the question of need has been raised. This document, along with the 9-pt Criteria and supporting submittals should be sufficient to answer the question of need.

First, it is necessary to orient to the overall set of amendments. While large in total number, once you begin to break them down, you can quickly set apart the ones that are substantial vs. the ones that are small in impact. Half are driven by direct statutory requirements incumbent upon the OSFM, and many others are attributed to leading code development issues such as Wildland-Urban Interface Building Standards or Motion Picture provisions.

Focus can be narrowed to the most significant and/or controversial amendments. These are primarily found in Chapter 5 and have centered on the General Height and Area provisions. In the following list, the total number of amendments is categorized into their relative area of impact and the amendments receiving the most attention are categorized as "Other" at the bottom of the list.

Most important is our approach to these amendments – they are small in number, precise in scope, and limited to those high-risk occupancies that the OSFM specifically regulates due to their potential for life loss. Their overall impact on the state of California or any particular industry or stakeholder is negligible to non-existent.

Finally, the OSFM Amendment Package has the widespread support of California Building and Fire Officials and many industry representatives. We believe that the comments of opposition to our package largely stem from misunderstandings about the scope of our proposals or concern about specific industry market share.

Number of Amendments	Description (Chapter/Item)
149	International to California
45	Chapter 2 – Definitions
38	Chapter 3 – Definitions
73	Care Facilities (I-1, I-4, R-3.1, R-4) (Statutorily Driven)
14	Large Family Daycare Homes (Statutorily Driven)
18	High-Rise (Statutorily Driven)
45	Group "L" Occupancies (The existing H-8 Occupancy)
34	Group "C" Occupancies (Camps) (Statutorily Driven)
28	Wine Caves (Statutorily Driven)
78	Fixed Guideways Transit Systems (FGTS) (Statutorily Driven)

3	Motion Picture & Television Production Studios (Statutorily Driven)
34	Explosives – (Title-19, CCR) (Statutorily Driven)
13	Combustion Engines/Electric Vehicle
14	Group “E” Occupancies (Statutorily Driven)
31	SFM Elevator Requirements
33	Existing R-1/R-2 (Statutorily Driven)
6	Existing R-1 High-Rise (Statutorily Driven)
32	Existing High-Rise (built prior 1975) (Statutorily Driven)
3	Existing Dwellings (Statutorily Driven)
6	Public Libraries (Statutorily Driven)
43	Group I-2, I-2.1 Occupancies (Statutorily Driven)
41	Group I-3 Occupancies (Statutorily Driven)
47	Chapter 7A – Exterior Wildfire Exposure (Statutorily Driven)
117	Chapter 35 – Referenced Standards
125	Correlation between Fire Code and Building Code - Chapter 9 (Amendments duplicated from the Fire Code to maintain consistency with IBC/IFC Model Code Format)
73	Other Amendments Chapter 10/Means of Egress [29] Chapter 5 [12] Height and Area [3] High-Rise Smoke Control [10] Corridors – 1-Hr/Smoke/Openings [15]

1,143 Amendments (588 Statutorily Driven)

While much has been made about the OSFM package containing 1,143 amendments, the vast majority are statutorily mandated or necessary clarifications specific to California. Only 73 amendments are classified as "substantively new" amendments to the 2006 International Codes and of those, only a small percentage (related to height and area provisions) have received significant negative comment.

3. Reasons for Proposed Amendments

As the legacy codes were merged, there was discussion about how to handle the widely varying height and area provisions found in each of the three codes. It was sufficiently complex that the drafting committee chose to use an existing formula that had been in discussion for several years. Life and property loss data was determined to be of such poor quality and relevancy that a data-based approach to height and area was impossible to construct.

A decision was made to simply use the base formula, then modify it so that no building would be considered non-conforming and that no region of the country would find the code more limiting than the one they were used to. This resulted in the Uniform/ICBO users generally finding that the IBC buildings are significantly larger than those they are used to.

A widely held perspective is that the buildings now being constructed under the IBC are formed of construction types, heights and areas that are larger and differently configured than any previous code allowed. This forms the foundation of the controversy around the "Height and Area" discussion as well as whether the IBC has an adequate level of balanced and/or layered fire protection.

Since the first IBC publication in 2000, this controversy has grown in volume and an increasing number of code proposals have been proposed with each cycle. With California's entry into the I-Codes adoption process, the issue has taken on greater significance since we represent such a major stakeholder.

The OSFM is committed to pursuing this issue to an acceptable level of conclusion and supporting the IBC fully. Meanwhile, we are making recommendations for reducing some area increases for the high-risk assembly, educational, institutional, residential, high-rise and hazardous occupancies.

The three amendments in Chapter 5 (Sections 504.2, 506.3, and 506.4) comprise the bulk of the Height and Area amendments and the OSFM will demonstrate to the Building Standards Commission that we believe these three amendments to be reasonable, limited in scope and effect, applicable equally to all building materials industries, and affecting only a few percent of the buildings actually built in California. In short, they represent a small to moderate effect with no negative economic impact from today's construction and building economy.

The bulk of reasoning behind our proposal for amending the model code is as follows:

1. California Demographics: The purpose of the OSFM is to protect people. We must consider who those people are and what their specific needs are in order to adequately protect them. The state population projections show an increasing percentage of residents with special needs such as age concerns, disabilities, and non-English speaking concerns.

   Some basic facts about California's unique social conditions should be stated. These are (US Census 2000):

- Age
  - Total state population in 2000 was 34 million
  - Total state population projected for 2030 is 46 million
  - 42% of population will be under age 17 or over age 65 in 2025

- Non-English Speaking
  - 40% speak another language at home, with 3.3 million speaking little to no English

- Disabled
  - 18% of the total population has some type of disability
  - 11.5% are Severely Disabled
  - These statistics are expected to grow as both supportive technology and age segments grow.

2. Natural Hazards - California is a significant natural hazard state. The IBC does not adequately address our regional seismic, wind, and wildfire frequency of occurrence. This is not a criticism, just a reflection that this is our problem, not the nations and we must ensure the code reflects our unique conditions.

3. Sprinkler Reliability – Two issues cause the OSFM concern in regards to placing the same reliance on sprinklers that the model code does. First is the national estimate of an overall reliability rating of 89%. This means that one fire in ten will not be effectively controlled by the primary method of protection. Second is that seismic events both spark ignitions and compromise sprinkler mechanical and water supply systems, all while overwhelming the emergency response system with rescue demands.

4. Fire Department Operations – The IBC states as a goal the consideration of firefighter safety along with the occupants and the need to design buildings to facilitate fire rescue and suppression demands. Yet no firefighter sits on the IBC Development Committee and there is insufficient understanding of what firefighters face when they are inside a building performing rescue and suppression. The OSFM worked directly with firefighters in analyzing the impacts of larger buildings on fire resources, tactics, and safety. We also ran through a response scenario for the R-2 occupancy. Their comments are summarized as:

   > "Time is the enemy. Bigger buildings without compartmentalization require more firefighter's on-scene, more potential for getting lost while interior, more need for air support."
   >
   > "Smoke is a significant problem, even when there are sprinklers there's a lot of smoke. In fact, sprinklers drive the smoke lower in the building and makes rescue more complicated. Smoke inhalation and disorientation are a big problem and firefighters must combat this even with sprinklers".
   >
   > "We use area separation walls for tactical control points, without them we will have to take more defensive tactics and may not go inside if the fire is well-seated".

   Overall, the operational input was that sprinklers are great but that they aren't always effective. When that happens, the fires we may be facing with the IBC heights and areas may be more difficult to extinguish than those we are currently staffed and trained to fight. Even when sprinklers do work, there is interior rescue, evacuation, and firefighting still to do.

Sprinkler Reliability

Sprinklers are a highly effective tool for controlling fires. They are one of the primary reasons that fire death and losses in America have declined over the past three decades.

The IBC acknowledges this success and relies on it heavily as it formulates a layered fire protection strategy. A total of 493 sprinkler trade-offs are allowed to all facets of building requirement (as compared to 225 in the UBC, 1997) from the controversial heights and areas allowances to smoke control to reduced exit widths. The net effect of this has been to encourage a wider, voluntary usage of sprinklers by builders since their use is cost-neutral or positive due to the trade-offs.

Yet a couple of troubling facts question whether this is an appropriately scaled approach. First is sprinkler reliability. Reliability is broken into two categories:

> Operational Reliability is the probability that a system or component will operate as intended when needed.
>
> Performance Reliability is the measure of the adequacy of a system once it has operated to control a fire.

Sprinklers are usually designed to control a fire rather than extinguish it. This means that when a fire starts, heat activates the sprinkler head, water flows and the fire is kept to a small size. The fire continues to burn although not spread rapidly. When firefighters arrive, the fire is still producing smoke and gases, evacuation and/or rescue is still required, and fire suppression is still required. The value of sprinklers is that if all works correctly, these are manageable events rather than rapidly spreading, uncontrolled events.

Several attempts at quantifying sprinkler reliability have been attempted and the most recent professional, published analysis supports a reliability average value of 89%. (Reliability of Automatic Sprinkler Systems, William E. Koffel, P.E., September 2005) This number represents a middle ground of the values being debated within the fire protection design system, and the OSFM feels it is a fair and supportable value. (See Appendix C – Reliability of Automatic Sprinkler Systems)

This 89% value means that roughly one fire in ten in a sprinklered building will escape the control of the designed, primary fire suppression system. When this occurs, the remaining back-up systems of compartmentalized area and firefighters then become the primary mechanisms of control. Recent anecdotal examples of this include: (Round Table/White Paper Presentation – Society for Fire Protection Engineers Symposium 2006, “Is the International Building Code Meeting Its Intent of Protecting Firefighters?”.)

- In 2004, a 240,000 sq ft auto parts distribution center caught fire, the fire overwhelmed the sprinkler system and it was the single largest loss of U.S. property that year.
- In Texas, a 100 Unit apartment building suffered $11 million in fire damage when the sprinklers had been shut down due to a leak.
- In Maryland, an historic Court house suffered $8 million in damage, sprinklers were present but there was no report on their effectiveness

Another significant concern with sprinkler reliability is the recent discovery of several faulty sprinkler head designs that have generated recall notices. In the past 15 years, nearly 50 million sprinkler heads have been recalled. This represents a significant issue when calculating the overall reliability of sprinkler systems.

Other reasons sprinkler systems may not function as designed and planned include human intervention such as shutting the system down manually and forgetting to turn it back on, 'contents'- driven fires that are hotter than the sprinklers were designed for, arson, and the biggest concern: seismic ground shaking that disables the water supply system itself.

Taken as a whole, the reliability factor of sprinklers leads the OSFM to conclude that a more conservative, layered fire protection approach to buildings with the higher risk occupancies is warranted.

Natural Hazards: Seismic

California's seismic hazards hardly need describing to the Building Standards Commission. This document will focus on the effect of seismic occurrences to buildings and fires, and the emergency response system.

Seismic events do three things simultaneously related to our concerns:

1. They disrupt the water supply and damage the sprinkler systems.
2. They cause ignitions from a variety of sources.
3. They overwhelm the emergency response system instantly and on a large-scale.

In the Northridge Earthquake, there were 100 ignitions immediately after the ground shake with 30-50 significant fires. The Loma Prieta Earthquake disabled water supplies around the Bay Area, most notably in San Francisco where the fire department had to pump water from the bay to fight fire.

Recently released studies by CalTech in August, 2006 describe building collapse of greater magnitude than predicted, even under modern building codes. The United States Geologic Survey calculates probability of earthquake occurrence and predicts a 62% probability that a 6.7 magnitude or greater quake in the Bay Area in the next 25 years. Remember Northridge was 6.6, and Loma Prieta measured 6.9.

One report from the Association of Bay Area Governments predicts:

> *This earthquake scenario has the potential to cause severe damage to public infrastructure throughout the Bay area, including fire stations and hospitals. A Bay area magnitude 6.7 earthquake may expose 2,970 fire, police and local government buildings to violent shaking. Additionally, 76 hospitals will be exposed to the same level of shaking (ABAG).*

Additionally, the Southern California Earthquake Center predicts 80-90% probability of a 7.0 magnitude quake in Southern California before 2024.

This type of damaging urban earthquake usually causes gas line breaks and electrical shorts, resulting in structure fires. Fire fighting capabilities are severely hampered by water pipe, water tank and roadway damage, along with roadway congestion. The potential for conflagration is significant.

With damaged fire sprinkler systems, limited water supply and severely impacted fire service response, the last line of defense is the building's passive fire suppression components. Even without water or a single on-scene firefighter, the spread of fire may be slowed and potentially contained, by building components such as fire separation walls and fire resistive construction.

(California) Building and Fire codes have advanced incrementally over the past 80 years, primarily triggered by various earthquake and fire disasters. These advances have consistently balanced active and passive fire suppression capabilities. As a result, the current existing building stock, constructed over the past 80 years and serving over 35 million inhabitants, has a balanced and proven fire suppression capability.

The model building code as currently written has a heavy dependence on a functioning fire sprinkler system. This dependence is excessive, particularly in a very seismically active state such as California.

Statistical Relevancy

Much of the opposition about the proposals to amend the Height and Area sections of the IBC centers on the need for statistical data relative to loss history. At both the national and state level, this is not possible. The unfortunate fact is that the National Fire Incident Reporting System (NFIRS) is a voluntary data entry system and complex, and not widely used by fire departments. In California, we have 960 fire departments and in the past 5 years, only 24% have reported to NFIRS consistently. This is a problem we intend to address over time.

Fire departments around the country are the data entry points and their participation is required only if they wish to receive federal grant money. The result is that the body of data to clearly demonstrate the conclusions we seek about the effect of building height and area on life and property loss is non-existent or inconclusive.

It is important to remember that this applies equally to both the current height and area values as well as proposed changes. For this task, statistical analysis will not yield the answers we seek and professional knowledge and experience must guide the decision-making.

Other State Height and Area Amendments

Another issue cited in the opposition to amending the Height and Area provision is that no one else has done it. Ten other states have modified the sections at issue, although none in the exact same manner as California. It should be noted however, that Building Officials Association of Florida submitted Height and Area code proposals at the national hearings that were very similar to California's, as did the National Association of State Fire Marshal's.

The following has been determined from our review of several states; nine have made alterations *other than* editorial changes in these sections and elsewhere, which have significant implications on height and area requirements of the IBC. Along with this, New Jersey is making significant changes in adopting the 2006 IBC. Massachusetts has also made significant changes that will be effective within its borders when it places the IBC in force for the first time. However, none of these changes appear to be as comprehensive as proposed for the CBC. States with significant amendments are highlighted below.

Alaska:

No changes to Chapter 5 but an appendix "L" added to address construction of buildings for North Slope oil production. This section appears a bit odd In that it seems to be a requirement and not an advisory section from the text.

Florida:
Text and content changes - 504.1, 504.2, 506.3

Kentucky:
Text and content changes – 506.3

Massachusetts:
Changes In areas for sprinkler systems – 506.3
Changes In allowable areas for multistory buildings - 506.4 and Table 503

Maryland:
Changes to 504.2

New Hampshire:
Significant content changes to Table 503 + others

New Jersey:
Changes to Table 503 + changes to remain "consistent with BOCA" [see Comment No. 14. pp 8 of NJ Community Affairs Digest]

New York
Some changes to table 503, editorial to 506.3, 506.4

Washington –
Amends Sections 503 and 506 to create significant differences from the IBC Model Code

4. Providing Reasonable Solutions

The concerns raised by the OSFM relative to the model code need focused, reasonable solutions. We are fully aware of the need for a balanced approach to these risk concerns and also support moving forward with a model code that may be a better solution than the older ones. However, we feel that the jury is still out on many of the basic tenets of the IBC, and while it may fully and adequately address public fire and life risk issues, firefighter safety and operations, and reliance on active sprinkler-based protections systems, there is also a distinct possibility it could use improvement.

For this reason, we are proposing to allow an unamended IBC for those occupancies that constitute primarily a property loss risk as opposed to a life risk. Our amendments focus on those high-life risk occupancies only. In addition, our amendments support the conclusions of the IBC but do not extend the full area and height allowances in the modifications sections.

We did not amend Table 503 – Base Tabular Values. We did not remove any sprinkler allowances; we did not reduce the heights of the buildings. Instead we:

- Allow height or area increases, but not both.
- Remove the ability for R occupancies to extend to 4 stories in height with un-sprinklered attic spaces for wood construction types (same as CBC).
- Allow the 200% building area increase modifier but not the 300% one.

Again, these amendments do not affect all occupancies. They will affect only the high-life risk ones of Assembly, Educational, Institutional, Residential, Hazardous and High-rise. This means that the majority of California construction will be completely unaffected by our proposals (unless amended locally). And for those buildings that are affected, we believe the effects will be to allow buildings slightly larger than today's CBC. For those buildings that are affected by the amendments the economic impacts should be negligible compared to today's construction costs. We do acknowledge that the anticipated reduction in construction costs or increases in market share that some industries may have looked forward to will not be as great as the model code predicted. *However, we do not anticipate cost increases from today's environment.*

We strongly believe this is a focused, reasonable approach to the protection of fire and life safety and represents an acknowledgement of the value of the model code while treating the higher risk occupancies more conservatively due to California's unique conditions.

Economic Considerations

Below is a table outlining the construction market In California according to the Construction Industry Research Board, 2005 data. Obtaining construction data by occupancy type in California requires a city-by-city permit search which is beyond the scope of this office. However, CIRB provides equivalent data in general occupancy categories tabulated by dollar value. This gives us an accurate, general picture of the market and allows us to analyze the impact of the SFM amendments on total construction.

It is clear that the greatest construction market segment belongs to the residential sector with 57% attributed to the Single Family Dwelling category. Second in size is the R-2, Multi-Tenant Dwelling segment with 20 % of the total market. Finally, other occupancies addressed in our amendments fall Into the R-1/A-2 category which comprise 1% of the construction volume.

It is estimated that even conservatively including the entire Office/B category (in the event it is a high-rise building), the SFM amendments will only affect 24% of the total market and that is primarily attributable to the R-2 impact. Yet the impact is negligible for the following reasons.

The R-2 construction market In California today is geared toward the land values, architectural and community design standards, and codes we have in place today. It is estimated that the number of 4-story apartment units In California comprise less than 10% of the total of all apartments, so translated this means that the vast majority (90%) of R-2 construction in state today is 2 or 3-story, NFPA 13 or 13R sprinklered, Type V-A (1 HR) construction. Our amendments still allow the same style of construction to continue without change. (Cost Estimate per sq ft is $86.83 per Building Safety Journal, August 2006 - uncorrected for California.)

The three height and area amendments will impact R-2 construction only if the applicant requests to apply the height or area increases over the base allowances. In that case, the applicant can select to upgrade to a full NFPA 13 sprinkler system for height or area increases, or construct fire walls for every 90,000 sq ft. (an increase of 6,000 sq ft compared to our present California Building Code).Today, with the same design request under the CBC, the applicant would be required to do everything the same but erect fire walls (area separation walls in the CBC) at only 84,000 sq ft. Our amendments allow a small increase over today's requirements and still allows for the same number of stories.

If we did not amend this section, we could be left with a wood built apartment building, 4 stories in height with an un-sprinklered attic and nonhabitable rooms and areas (elevator machine rooms, penthouse equipment rooms, crawl spaces) that are beyond the reach of fire department ground ladders of 24 to 35 feet. We believe this is not prudent given all of the risk considerations outlined in this document.

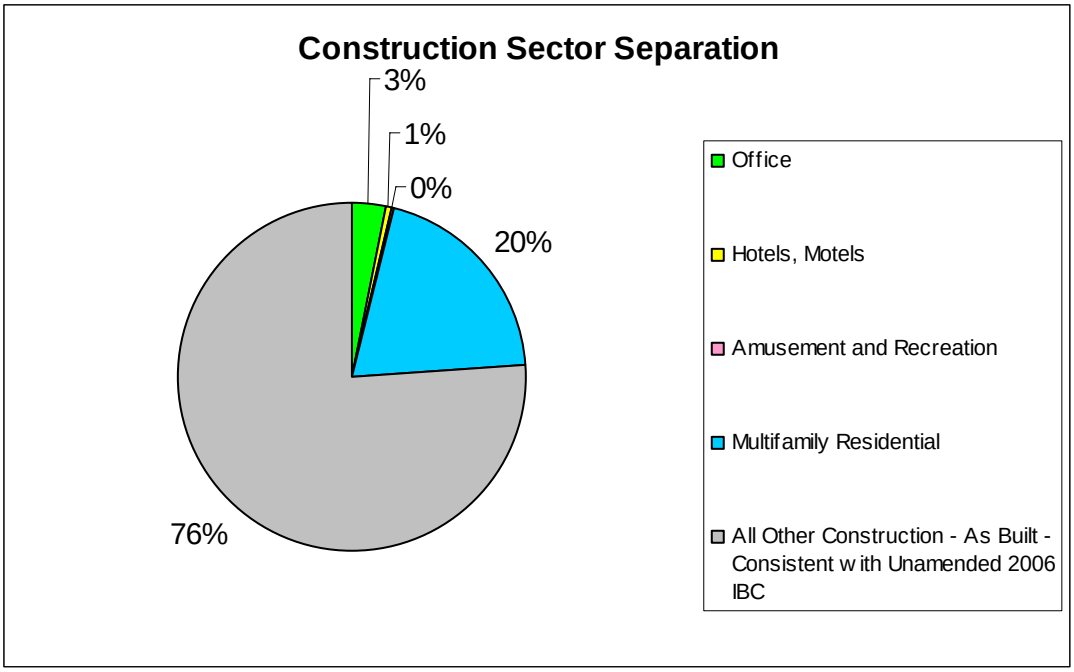
A search of the ten largest non-residential construction projects in California in 2005 show that only two of the ten would be directly affected by the proposed OSFM amendments – a pharmaceutical manufacturing facility and a hotel for a total project value $252 million out of a total 'all construction' value of $ 14.4 billion. (See Appendix D – Ten Largest Construction Projects 2005)

Finally, it is very important to note that the California residential industry supports this package. The National Multi-Housing Council submitted a letter of opposition, but other national residential groups have not. We believe the most affected parties, the California commercial residential builders and owners, are satisfied that our proposals are reasonable and economically neutral. (See Appendix E – How will the changes to the 2006 International Building Code proposed by the California Office of the State Fire Marshal [OSFM] effect R-2 building costs)

Building Configurations Issues

Cost Impact

Non Residential Sector		2005 Construction Dollars from Permit Valuations, Billions of Dollars	Percent of total (%)
Component	Occupancy		
Industrial	F	1.693	3
Office	B	1.881	3
Stores	M	2.928	5
Hotels, Motels	R-1	0.384	1
Parking Garages	S-1	0.437	1
Amusement and Recreation	A-2	0.165	0
Alterations - Non Residential		6.901	11
Total Non Residential - selected segments		14.389	23
Residential Sector			
Multifamily Residential	R-2	12.26	20
SFD Residential	R-3	34.88	57
Total State-Wide Construction From CIRB Data		61.529	100



Reference: Construction Industry Research Board, 2006. "Building Permit Summary: California Cities and Countries Data for Calendar Year 2005." Burbank, California.

5. Final Recommendation

California is a leader in the fire and life safety professions. Our building and fire officials are some of the nation's best and speak with considerable experience. We strongly believe the OSFM proposals continue this reputation and allow for change and overall improvement of our building community while at the same time, taking a more conservative approach than the model code in the high risk occupancies.

Reasons supporting this recommendation are numerous.

1. The variety and frequency of natural disasters require greater care and consideration than the model code provides. 75% of the nation's earthquake risk is located In California and we must address this risk though this amendment process.
.
2. Vulnerable and special need populations are growing and require higher levels of protection than we commonly think of with able-bodied, English-speaking adults.

3. Sprinkler fire protection systems are the best, first defense against life and property loss but are not infallible. Layered fire protection is the appropriate risk mitigation approach.

4. Our life loss history In California continues to need improvement as does firefighter safety. Too many people still die in preventable, mitigable fires.

5. The OSFM is charged with setting the fire and panic standards for California and has done so with an open, participative, researched and professional process for this adoption.

6. The impact of our amendments is not far-reaching or overly restrictive. They are reasonable, focused, limited to those buildings with the greatest risk of life loss, and economically neutral.

7. This package has widespread support of the fire service, building officials, industry, other state agencies, and stakeholders. Any remaining voices of opposition come from primarily specific out-of-state interest groups. The OSFM continues to work with these stakeholders to educate and find common ground as we have done throughout this past year.

8. Adoption of this package will allow for the quickest, smoothest implementation possible of the CBC. Local amendment processes will be minimized and the CBC will be a more consistent document than if these issues were addressed by individual jurisdictions.

The OSFM thanks you for your extraordinary commitment of time to this goal. The Building Standards Commission has performed above and beyond the call.

UPDATES TO THE INITIAL STATEMENT OF REASONS

(Government Code Section 11346.9(a)(1) requires an update of the information contained in the initial statement of reasons. If update identifies any data or any technical, theoretical or empirical study, report, or similar document on which the state agency is relying that was not identified in the initial statement of reasons, the state agency shall comply with Government Code Section 11347.1)

The Initial Statement of Reasons has been updated, as follows:

Revised Statement of Reasons for Section 305.2 as follows: (305.1, 2001 CBC)
SFM is proposing to bring forth this amendment to clarify that a day care facility for more than 5 children that cannot respond to an emergency situation without physical assistance from staff would be classified as a Group I-4 Occupancy. This places children who are not physically or cognitively able to respond in an emergency situation into an occupancy that provides a higher level of protection. Furthermore the IBC Commentary, indicates that children less than 2 ½ years of age are generally incapable of responding to emergencies and therefore need to be placed in an occupancy with a higher level of protection (Group I-4).

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.

Revised Statement of Reasons for Section 310.12 as follows: (310.1, 2001 CBC)
SFM is proposing this amendment to clarify that SFM statutorily mandated residential care facility occupancies formerly known as the R-2's and R-6's housing more than six ambulatory clients be placed within the R-4's in the IBC. Further, all the previous R-2's and R-6's that house six or less regardless of ambulatory status be placed in a new occupancy classification in the IBC, which is R3.1's, recognizing the characteristics of a dwelling unit (R-3 - single-family dwelling), but is identified by the designation of R3.1 rather than simply R-3. This amended language is necessary in order to include the uses of these facilities that are currently in the 2001 California Building Code, and part of State regulated facilities that are usually licensed by Department of Social Services. This amendment does not create a change in regulatory effect or in its requirements.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.

Revised Statement of Reasons for Section 403.9 as follows:
SFM is proposing this amendment to create a requirement for elevator lobbies in high-rise buildings. This amendment is necessary to limit the spread of smoke via the elevator hoistway. Additionally this amendment provides a smoke and fire barrier between the elevator hoistway and the remainder of the buildings hallways, corridors, and stairways as well as staging area for firefighters. This amendment is consistent with the previous requirements contained in the 2001 CBC, which will maintain the fire and life safety policy of the SFM. The amendment does not create a change in regulatory effect.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.

Revised Statement of Reasons for Section 425.2.3 as follows:
SFM is proposing to bring forth this existing SFM amendment regarding temporarily (having any illness that persists for 14-days or less) bedridden clients. These amendments are consistent with the provisions of the Health and Safety Code, Section 1566.45 as redefined by Senate Bill No. 1896, which were previously contained in the 2001 California Fire Code, which will maintain the fire and life safety policy of the SFM. These amendments do not create a change in regulatory effect.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.

Revised Statement of Reasons for Table 503 as follows: (Table 5B, 2001 CBC)
SFM is proposing to bring forth this amendment to maintain a higher level of construction for detention facilities than is permitted by the IBC. SFM is proposing to bring forth these existing SFM amendments to provide construction requirements for Group I-3 Occupancies to maintain current level of protection. California correctional needs are not fully addressed by the IBC. California's fire loss record for these types of facilities must not be diminished. These amendments are consistent with the previous requirements contained in the 2001 California Building Code, which will maintain the fire and life safety policy of the SFM. These amendments do not create a change in regulatory effect.

SFM is also proposing to add Groups I-2.1, L and R-3.1 occupancies to the table. This amendment is consistent with the previous requirements contained in the 2001 California Building Code, which will maintain the fire and life safety policy of the SFM. The amendment does not create a change in regulatory effect.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.

Revised Statement of Reasons for Table 601 as follows:
SFM is proposing this amendment to retain the current level of protection for the structural frame members located in the roofs of buildings greater than 20 feet in height above the floor (f*or high-rise buildings, Group A, E, I, L, R-1 and R-2 occupancies and other applications listed in Section 111 regulated by the Office of the State Fire Marshal)*. This proposed amendment does not allow Footnote c to be applied to the structural frame members located in the roofs of buildings where the fire-resistive protection of the roof framing and decking and roof construction more than 20 feet in height above the floor below is allowed to be omitted in those types of construction where the roof would be required to have at least a 1-hour fire-resistance rating. As Footnote c is currently structured in the IBC, it would apply to buildings containing occupancies in Groups A, B, E, F-2, I, R, S-2 and U.

Basically, this is a fire fighter safety issue since the responding fire department often times will send fire fighters to the roof of a burning building to ventilate it in order to assist them in their fire fighting efforts for an internal fire attack. If the structural frame in the roof of a building that is otherwise required to be of fire-resistive construction is allowed to be omitted because the roof is greater than 20 feet in height above the floor below, there is the possibility that the roof could suffer a premature catastrophic structural collapse. The structural frame is the most critical element of the overall building structure since it maintains the basic structural integrity of the building and carries the vertical loads to the ground. This would also be an issue for those fire fighters who must attack the fire internally. By not omitting the fire-resistive protection for the roof structural frame elements, the odds are much greater that there will not be a significant structural collapse while the fire fighters are attempting to fight an uncontrolled fire inside the building. Also, fire fighters on the roof attempting to ventilate would be at less risk due to a significant structural collapse.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.

Revised Statement of Reasons for Table 602 as follows:
SFM is proposing to bring forth existing SFM amendments design and construction features in Group L occupancies used as laboratories for scientific experimentation or research facilities previously classified as H-8 Occupancies. This amendment is consistent with the previous requirements contained in the 2001 California Building Code, which will maintain the fire and life safety policy of the SFM. This amendment does not create a change in regulatory effect.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.

Revised Statement of Reasons for Section 704.5 as follows:
SFM is proposing this amendment to require all exterior walls (f*or high-rise buildings, Group A, E, H, I, L and R occupancies and other applications listed in Section 111 regulated by the Office of the State Fire Marshal)* to have their required fire-resistance ratings determined as a complete assembly based upon the ASTM E119 fire test method being applied to each side of the exterior wall regardless of the fire separation distance. Requiring the exterior walls to be fire tested to resist fire exposure from both sides, regardless of the fire separation distance, would greatly improve the ability of exterior walls to remain in place and resist fire exposure from the exterior, as well as the interior, while maintaining their structural integrity. This amendment is consistent with the previous requirements contained in the 2001 California Building Code, which will maintain the fire and life safety policy of the SFM for state regulated occupancies. The amendment does not create a change in regulatory effect.

Part of the justification for maintaining fire-resistance ratings of the exterior walls is due to California's high seismic risk. The moderate sized Loma Prieta (Magnitude 6.9 - October 17, 1989) and Northridge (Magnitude 6.7 – January 17, 1994) earthquakes each experienced more than 100 nearly simultaneous earthquake induced fires. Future major earthquakes that can be expected throughout California will produce a multiple increase in fires, as well as increased damage to streets and public water systems that will hamper fire suppression responses and operations. Without this amendment, the exterior walls of buildings in dense urban areas will have a diminished ability to resist fire exposure, which will increase the possibility of a conflagration. Also, the capability of local resources for emergency response is based on building designs that have existed in California for decades. Reducing the ability for buildings to withstand exterior fire exposure without offsetting these reductions with additional resources isn't prudent.

There is also concern that fire which may break out of an opening in an exterior wall will expose the exterior wall from the outside while simultaneously exposing the exterior wall from the inside. No standardized fire test presently evaluates such an exposure to determine the fire resistance rating for an exterior wall application. This type of exposure would be significantly more severe than the standard ASTM E119 fire exposure which only exposes one side of the wall to the fire, yet without this amendment the wall would be allowed to be tested from the inside only if the fire separation distance is 5' or more. This is especially critical for exterior bearing walls whose structural integrity may be adversely impacted by such a fire scenario, which could result in premature structural collapse. This could cause an exposure problem to fire fighters attacking the fire from the exterior while protecting adjacent exposures and could also result in a more severe fire condition exposing adjacent buildings and structures.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.

Revised Statement of Reasons for Section 705.1.2 as follows:
SFM is proposing to bring forth an existing SFM amendment addressing the use of fire walls to create separate buildings for the purposes of fire sprinklers. This amendment clearly defines that the use of a fire wall to divide a building will not preclude the installation of fire sprinklers. Additionally SFM if revising the term "area separation walls" to "fire walls", this revisions is to correlate with the term for these type of walls used in the IBC This amendment is consistent with the previous requirements contained in the 2001 California Building Code, which will maintain the fire and life safety policy of the SFM. This amendment does not create a change in regulatory effect.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.

Revised Statement of Reasons for Section 707.14.1 as follows:

OSFM is proposing to amend this section in four places. The first amendment is to reduce the threshold trigger for requiring elevator lobbies which the IBC specifies areas when elevator shaft enclosures connect more than three stories to when such shaft enclosures connect more than two stories. Second, Exception 4 has been revised to substitute the defined term “High-Rise Buildings” for descriptive language for a high-rise building. Third, Exception 6 is being revised to provide a conditional phrase “when approved” for its application. And, finally, a new Exception 7 is proposed to bring forth a current SFM amendment.

The change in the threshold trigger for requiring elevator lobbies from three stories to two stories for the number of stories connected by the elevator shaft enclosure is consistent with the current requirements in the 2001 California Building Code. This will assure that the current level of fire and life safety will be maintained without a significant change in regulatory effect. This is especially important for local fire departments that base their fire fighting tactics and standard operating procedures on the fact that they will expect to find elevator lobbies protected in buildings that are more than two stories in height. Protected elevator lobbies in elevator hoistways are an important built-in fire protection feature which fire departments rely upon when conducting their fire fighting and search and rescue operations.

The purpose of the proposed amendment to Exception 4 is to simply substitute the legislatively mandated definition for “high-rise building” that has been incorporated into the California Building Code for more than twenty years for consistency.

The purpose of the proposed amendment to Exception 6 is to require specific approval by the code enforcement official when a designer proposes to use Exception 6 to the requirements for elevator lobby protection. This exception allows the elevator hoistway to be pressurized as specified in Section 707.14.2 as an alternate to the elevator lobby protection required in Section 707.14.1.

Elevator shaft pressurization is problematic at best. That is why specific approval is called for so the proposed design can be properly evaluated to determine that it is suitable for the proposed building design. This is especially true for high-rise buildings where various environmental factors can disrupt the required level of pressurization specified by the code for elevator hoistways in order to provide adequate protection to prevent the migration of smoke via the elevator hoistway. Such conditions as outdoor air temperature, stack effect, and wind can cause the pressure differentials within the building to change over time and by location within the building, as well as by the amount of pressure difference that may result between the pressure in the elevator hoistway and the pressure in the building versus the outside air pressure. These are all complicating factors which make it very difficult to design an elevator hoistway pressurization system that will function as intended under any weather conditions at any time of the year regardless of the outside temperature. There is also the potential that over-pressurization may occur which could cause the elevator hoistway doors to bind and not operate properly. The piston effect of elevators moving within the shaft also complicates elevator shaft pressurization.

We believe it is more appropriate that elevator hoistway pressurization designs, if desired, be proposed on a case-by-case basis and evaluated as an alternate method so that appropriate scrutiny can be given to the design to assure that it will perform as intended to prevent smoke migration through the elevator hoistways under all reasonably expected conditions. This approach would be more appropriate than the prescriptive approach specified in Section 707.14.2 which is based on the city of Portland, OR requirements which may not be appropriate for all of California.

The purpose of the amendment to add a new exception 7 is to bring forward current exception 7 from the 2001 CBC as found in Section 1004.3.4.5. This will maintain the fire and life safety policy of the SFM and has no significant change in regulatory effect.

The actions described above are reasonably necessary to carry out the purpose for which they are proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code to be published as the 2007 California Building Code pursuant to Health and Safety Code Sections 18949.2, 13108, 13113, 13114, 13131.5, 13143, and 17921.

Revised Statement of Reasons for Section 710.7 as follows:
SFM is proposing this amendment to require smoke dampers at both unducted (air transfer) openings and at ducted openings in smoke partitions. This will ensure that the current level of fire protection against smoke infiltration and spread is maintained for both ducted and unducted (air transfer) openings in smoke partitions consistent with the current requirements in Section 713.10 of the 2001 CBC. A new Exception 2 is also amended to this section to allow for the omission of a smoke damper in corridor partitions where the duct is constructed of steel (not less than 0.019-

inch in thickness) and there are no openings serving the corridor. This would provide the equivalent level of smoke protection to that of a smoke damper in a duct where a duct has an opening into the corridor.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.

Revised Statement of Reasons for Section 717.3.3 and 717.4.3 as follows:
SFM is proposing this amendment to modify the exception where automatic fire sprinklers are installed. Draftstops are required in combustible construction to cut off concealed draft openings (both vertical and horizontal). The code requires that draft stops form an effective barrier between floors or attic space (which impedes the spread of smoke, flame and/or superheated gases). The code also requires that attic spaces be subdivided. Experience has shown that the greatest damage occurs to conventional wood-framed buildings during a fire when the fire travels unimpeded through concealed draft openings. This often occurs before the fire department has an opportunity to control the fire, and greater damage is created as a result of the lack of draftstopping. Draftstopping slows the spread of the fire allowing firefighters the time necessary to successfully perform critical firefighting operations. This is especially important if the building fire sprinklers are inoperable due to a loss of water supply or other causes (earthquakes) that damage the water mains or the fire sprinkler system it's self. For these reasons, this amendment will require draftstopping to prevent the spread of fire through concealed combustible draft passageways. Virtually any concealed air space (vertical or horizontal) within a building will provide an open channel through which high-temperature air and gases will spread. This amendment is consistent with the regulatory requirements contained in the 2001 California Building Code, which will maintain the fire and life safety policy of the SFM. These amendments do not create a change in regulatory effect.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.

Revised Statement of Reasons for Section 903.2.7 as follows:
OSFM is correlating this amendment which is derived from the amendment proposed to the IFC. The promulgation and format of the IBC and IFC necessitate this action. Code sections that have [F] in front of them are considered by the ICC Fire Code Development Committee for the IFC and correlated into the IBC where necessary. OSFM is following the format of the code in these instances; where the primary code is the IFC and OSFM is proposing amendments to the section, those same amendments are correlated into the IBC as amendments.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.

Revised Statement of Reasons for Table 1017.1 as follows: (1004.3.4.3, 1007.6.1 2001 CBC)
SFM is proposing this amendment to include 1-hour fire-resistance rated corridors for SFM regulated occupancies which are protected with automatic sprinklers. A footnote is also added (footnote "d") addressing a cross reference to an amended section for means of egress in Group A occupancies.

It should be noted that corridors in non-sprinklered buildings are required to have a minimum 1-hour fire-resistance rating. But the 2006 IBC allows that rating to be eliminated (or reduced to ½ hour for Group R occupancies) when the building is sprinklered. An over-reliance on fire sprinkler systems must not be used to justify the reduction of corridor ratings. Without fire rated corridors, there are no redundant mitigating protective features to address the potential for sprinkler failure due to a disruption in water supply, mechanical failure, lack of proper maintenance, human error, or temporary disruptions to sprinkler systems that occur. There has been at least two major recall/voluntary replacements involving millions (11.4-million and 35.5-million respectively) of defective fire sprinklers. Sprinkler systems may be out of service for maintenance, construction (including tenant improvements) and/or unintentional

human error. There is also a vulnerability factor, besides seismic, where systems can be taken out by vehicle accidents or explosion.

Fire rated corridors also provide a protected area from which fire department personnel can operate when performing fire fighting operations. This amendment is consistent with the previous requirements contained in the 2001 California Building Code, which will maintain the fire and life safety policy of the SFM. In addition, SFM is proposing to add Group L occupancies. This amendment does not create a significant change in regulatory effect.

The requirement for 1-hour corridors was first referenced in the 1981 State Building Code (Title-24, Part 2, Section 2-3304(g) and required that "Group A, E, I, C, and D Occupancies having an occupant load of more than six (6) persons have fire-resistive construction for corridors and exterior exit balconies". Subsequent editions of the State/California Building Code have brought forward this amendment.

It should be noted that Group L Occupancies have been added to this proposal to bring forward the provisions of the current H-8 provisions of the 2001 CBC (Sections 3.7.2.12 and 1004.3.4.3).

The 2006 International Building Code (IBC) allows the use of non-fire resistance rated corridors (less than 1-hour fire resistance rating) to a much greater extent than the 2001 California Building Code (CBC) currently adopted by California. In many cases the required 1-hour fire resistance rating for corridors is traded-off for the installation of an automatic sprinkler system. In such cases, it is advantageous and desirable to maintain the built-in passive fire resistive protection, as well as to provide the active automatic sprinkler system protection, where life safety is involved. Trade-offs are entirely inappropriate where life safety is concerned. A balanced approach should be used to assure that the appropriate level of life safety will be provided to the occupants of the building who must rely upon the corridors to exit the building.

A secondary benefit of 1-hour fire resistance rated corridors is that they also assist fire fighters in doing their job by providing a protected means of access to the interior of the building where they can perform their search and rescue missions, as well as fire fighting operations, in relative safety. Fire resistance rated corridors can provide fire fighters with additional time to do their jobs more effectively and safely.

Sprinkler trade-offs should not be allowed for means of egress components. At present, neither the CBC nor the IBC allow sprinkler trade-offs for the fire resistance ratings required for exit stair enclosures, horizontal exits, and exit passageways. So why should sprinkler trade-offs be allowed for the 1-hour fire resistance rating of corridors which provide a protected egress path giving access to these exit elements?

Furthermore, other sprinkler trade-offs related to the means of egress in buildings have already been provided for in the IBC. For example, travel distance is allowed to be increased where automatic sprinkler systems are provided. The separation of exits (remoteness) is also allowed to be reduced where automatic sprinkler systems are installed. Interior finish requirements are relaxed within corridors where Class C interior finish can be used in lieu of Class B interior finish and Class B interior finish can be used where Class A interior finish would otherwise be required if not for the installation of automatic sprinklers. And in certain occupancies dead end corridors are allowed to be increased in length by as much as 150%, i.e. from 20 feet to 50 feet, where automatic sprinkler systems are provided.

The compounding effect of sprinkler trade-offs could lead to greater risk to the life safety of the building occupants, especially if combined with a reduction in, or the elimination of, the 1-hour fire resistance rating for corridors providing access to the exits or the exit stairs. Too much reliance on automatic sprinkler systems may not be wise where life safety is a key consideration. A balanced approach to fire and life safety in buildings should be provided to greatly enhance the probability that the intended level of fire and life safety prescribed by the building code will be provided when a fire occurs, even if something should go wrong.

The actions described above are reasonably necessary to carry out the purpose for which they are proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Sections 18949.2, 13108, 13113, 13114, 13131.5, 13143, and 17921.

– Any updates to the Initial Statement of Reasons are included in the Office of the State Fire Marshal changes to accommodate public comments.

MANDATE ON LOCAL AGENCIES OR SCHOOL DISTRICTS

(Pursuant to Government Code Section 11346.9(a)(2), if the determination as to whether the proposed action would impose a mandate, the agency shall state whether the mandate is reimbursable pursuant to Part 7 of Division 4. If the agency finds that the mandate is not reimbursable, it shall state the reasons for the finding(s))

The Office of the State Fire Marshal has determined that the proposed regulatory action WOULD NOT impose a mandate on local agencies or school districts.

OBJECTIONS OR RECOMMENDATIONS MADE REGARDING THE PROPOSED REGULATION(S)

(Government Code Section 11346.9(a)(3)) [List a summary of EACH objection or recommendation regarding the specific adoption, amendment, or repeal proposed, and explanation of how the proposed action was changed to accommodate each objection or recommendation, or the reasons for making no change. This requirement applies only to objections or recommendations specifically directed at the agency's proposed action or to the procedures followed by the agency in proposing or adopting the actions or reasons for making no change. Irrelevant or repetitive comments may be aggregated and summarized as a group]

The following is the Office of the State Fire Marshal's summary of and response to comments specifically directed at the agency's proposed action or to the procedures followed by the agency in proposing or adopting the actions or reasons for making no change:

COMMENTS RECEIVED DURING THE 45-DAY COMMENT PERIOD.

Pursuant to the requirements of Government Code Section 11346.8 (c), and Section 44 of Title 1 of the California Code of Regulations, the California Building Standards Commission provided a notice of proposed adoption by reference of the 2006 edition of the International Building Code with California Amendments into the California Code of Regulations Title 24, Part 2 which were the subject of a Notice of Proposed Action (Register 2006, Volume No. 35-Z, No. Z06-0718-04).

The text with the modifications clearly indicated, were made available to the public for a 45-day written public comment period from September 1, 2006 to October 16, 2006, with a Public Hearing held on October 16, 2006.

Name/Organization: **David P. Tyree, P.E., C.B.O. Regional Manager (American Forest & Paper Association AF&PA)**

Comments: The commenter stated that the OSFM adoption package contains approximately 995 proposals, of which it was noted that a majority of these code changes were taken from previous editions of the CBC and were requirements in the older, and now outdated, 1997 UBC, and that by doing so the OSFM is actually taking older and outdated provisions of the UBC and placing them into the 2006 IBC and therefore the result is that the OSFM is not adopting the IBC, but rather the old UBC with a different cover. Their proposals attempt to ignore the advances made in building technology and understanding over the last ten years and keep "everything the same" by not recognizing the newer provisions published in the IBC.

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Name/Organization: **Timothy H. Brannon, Senior Vice President (Rayonier - Forest Resources & Wood Products)**

Comments: The commenter stated that the OSFM adoption package contains approximately 995 proposals, of which it was noted that a majority of these code changes were taken from previous editions of the CBC and were requirements in the older, and now outdated, 1997 UBC, and that by doing so the OSFM is actually taking older and outdated provisions of the UBC. The proposals ignore the advances made in building technology and understanding over the last ten years. If approved, these amendments would make California's Building Code "unique" among other states and cities, thus defeating the purpose of a single national building code.

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Name/Organization: **Henry K. Ricklefs, Vice President, Manufactured Products (Plum Creek)**

Comments: The commenter stated that the OSFM adoption package contains approximately 995 proposals, of which it was noted that a majority of these code changes were taken from previous editions of the CBC and were requirements in the older, and now outdated, 1997 UBC, and that by doing so the OSFM is actually taking older and outdated provisions of the UBC and placing them into the 2006 IBC and therefore the result is that the OSFM is not adopting the IBC, but rather the old UBC with a different cover. Their proposals attempt to ignore the advances made in building technology and understanding over the last ten years and keep "everything the same" by not recognizing the newer provisions published in the IBC.

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Name/Organization: **Kerlin Drake, President, CEO (Power Building Systems)**

Comments: The commenter stated that the OSFM adoption package contains approximately 995 proposals, of which it was noted that a majority of these code changes were taken from previous editions of the CBC and were requirements in the older, and now outdated, 1997 UBC, and that by doing so the OSFM is actually taking older and outdated provisions of the UBC and placing them into the 2006 IBC and therefore the result is that the OSFM is not

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Name/Organization: **Lee Alford, Senior Vice President, Residential Wood Products (Weyerhaeuser)**

Comments: Commenter objection to the quantity (nearly 1,000) proposed amendments and noted the following points:

- The proposed amendments, which replace the latest IBC provisions with outdated 1997 UBC language, will increase the cost and complexity of buildings without providing measurable improvements in public safety.
- The efficiently delivered products in a broad range of markets will be stifled by unnecessary state and local regulations and will have a negative impact on the California economy.
- Many of the proposed building height and areas limitations in the OSFM amendments have already been proposed at the IBC Hearings by the National Association of State Fire Marshals with input from the California State Fire Marshal. They encourage the OSFM to continue to work within the IBC framework rather than adopting a unilateral, California-only, set of provisions.
- Procedural Issues:
    - The OSFM adoption package does not explicitly specify which amendments were developed as non-subjective and mandated by the H&S Code, verses amendments which are subjectively interpreted, yet compliant to the same code (H&S Code).
    - Use of the 9-point criteria would provide substantiation on rationale and costs.
- Technical Issues:
    - Table 508.3.3 needs additional clarification on fire resistance rating from 2- or 3-hours to 4-hours.
    - Section 704.5 relative to high-rise test requirements. (Note: Reference is made to the proposed changes to this section are not consistent with reasons given in the document – ISOR. It was further stated that "We would not agree with the position that would require all exterior walls to have their fire resistance rating determined from both sides regardless of separation distance and height of building.
    - The elimination of height and story increases for NFPA-13R sprinkler systems in residential occupancies – a reliable and less expensive means of providing sprinkler protection in affordable housing – is not justified.
    - Deviation from national practice is the specific elimination of references to the IRC throughout the OSFM proposal

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Name/Organization: **Adrian Blocker, General Manager Wood Products Division (International Paper)**

Comments: The commenter stated that many of the OSFM amendments adoption package contains approximately 995 proposals, of which it was noted that a majority of these code changes were taken from previous editions of the CBC and were now outdated, and that by doing so the OSFM is actually taking older and outdated provisions of the UBC and placing them into the 2006 IBC and therefore the result is that the OSFM is not adopting the IBC, but rather the old UBC with a different cover. Their proposals attempt to ignore the advances made in building technology and understanding over the last ten years and keep "everything the same" by not recognizing the newer provisions published in the IBC.

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Name/Organization: **George A. O'Brien, President and CEO (The Pacific Lumber Company – PALCO)**

Comments: Comment states that the over 900 code changes prepared by the OSFM are unnecessary and unusually complex.

- The nine-point criteria analysis has not been followed,
- An Analysis by AIA shows a dramatic increase in construction costs, without an increase in fire safety,
- The ICC represents the state of the art codes developed in an international consensus forum. They represent thoughtful thinking on issues of safety and cost.
- The OSFM amendments to the IBC will force designers to spend valuable time and effort learning a unique CBC,
- The IBC is a set of inter-related requirements for fire and life safety, structural issues, accessibility, durability, and serviceability as a system. The IBC requirements relate to each other and work together to provide comprehensive levels of safety at acceptable costs and not provided for when specific sections are arbitrarily changed.
- The IBC provisions are supported by strong, available data. Other states with model codes contain comparable or more liberal provisions.
- Adopt the model ICC Codes (IBC) with fewest possible amendments.

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It is also important to recognize that under the format of the IBC and IFC, many requirements (sections) contained within one code (IBC or IFC) must be placed within the other code (IFC or IBC) to reflect the uniformity and interconnection of these code sections. This is clearly reflected in Chapter 9 (Fire Protection Systems) of the IFC which contains 125 amendments which are brought forward to the IBC, and likewise Chapter 2 (Definitions), Chapter 5 (Fire Service Features), and Chapter 10 (Means of Egress) of the IBC which contains an aggregate of 106 amendments. Additionally, when taken into consideration the amendments to Chapter 35 of the IBC and Chapter 45 of the IFC (Referenced Standards) there are 117- and 129-amendments (246- amendments) in total which in most cases is simply revising to the latest editions of a NFPA, U/L, or other nationally recognized standard.

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Name/Organization: **Borjen (B.J.) Yeh, PhD, P.E., Director – Technical Service Division (APA – The Engineered Wood Association)**

Comments: The commenter points out the following in his written comments:

- Dismayed to see what the OSFM proposes as "amendments" to the IBC regarding fire.
- These proposals don't simply amend the IBC; they rewrite it in the mold of the CBC.
- These proposals are not intended to move California's fire regulations into the 21st century, but rather, an attempt to maintain the status quo and evade compliance with the instructions from the California State Legislature.
- No supporting documentation of the perceived need was given or mention, neither for individual changes nor for the wholesale nature of the change package.
- The IBC code-change process, which the OSFM proposals circumvent, requires that reasons be given for each and every proposed change to permit any interested parties to discuss the proposed changes in an open forum. This type of open forum is necessary for the development of a rational, fair, consensus-based code.

- The OSFM, on the other hand, has apparently taken a biased position related to fire codes. Without reasons for the proposed changes, how are the members of the CBSC, to whom the OSFM makes the change recommendations, supposed to make rational decisions? More importantly, how is the public supposed to know if the proposed changes are in their best interest?
- Our review of fire statistics from USFA shows that overall fire deaths and losses have been going steadily downward. While there are differences among the states, the reason for these differences is unclear.
- Until an authoritative study shows a clear correlation between the proposed code amendments and their probable effect on life and property loss, there is no good reason to arbitrarily eviscerate the nationally recognized, consensuses based IBC provisions on fire and replace them with old CBC language.

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The OSFM has followed the criteria set forth in the Health & Safety Code Section 18930(a) with regard to the 9-point criteria, and lengthy reviewed and analysis were conducted by the OSFM's 16-Working Groups, the Core Group, and the OSFM Staff. To insure that there were no conflicts, overlaps or duplications, the OSFM Staff worked closely with representatives of other "key" State Agencies (DSA, HCD, OSHPD, DOC, etc.) to cross-check and coordinate respective amendments.

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Name/Organization: **David Bischel, President (California Forestry Association)**

Comments: Specific concerns relate to the building height and area provisions for such buildings as apartments, hotels, motels, condominiums, and similar structures. The OSFM's proposed amendments to the IBC in this regard

are unwarranted and would cause a negative economic impact on our industry. In all, there are nearly 1,000 code modifications proposed by OSFM, with over 400 of those being significant. With these changes, the state would effectively be adopting its own unique standards that would be vastly different than the IBC. The state should adopt the IBC as other states have, which would bring about more uniform construction across the nation.

- No documentation to show that the OSFM utilized the nine-point-criteria justification. In particular, criteria #4 states "The proposed building standards are not unreasonable, arbitrary, unfair, or capricious, in whole or in part." The proposed code modifications do not meet this standard because they are unfair to wood products, and appear to be arbitrary.
- Section 403.3.1 – Type of Construction. The OSFM substituted the term "structural frame" for "columns supporting floors" in the exceptions to the model code language. This is an increase in fire protection from the model code and is related to the height and area/sprinkler "tradeoff" package. The amendment does not allow the high-rise reductions in fire-resistance ratings for any part of the structural frame. We believe that the mandatory sprinkler requirement adequately addresses this issue, eliminating the need for this provision.
- Section 408.1.1 – Construction. The OSFM proposal revises tabulated allowable areas (Table 503) and type of construction (Table 601) for I-3 buildings to require Type I and II construction. An exception has been added to allow the use of type III, IV, and V PROTECTED construction provided the building is limited to 5,200 square feet in area. The proposal does not allow any type of unprotected construction. This is contrary to the requirements contained in the IBC. The IBC drafting committee extensively reviewed fire data and fire records of the legacy codes. It concluded that these occupancies and types of construction are satisfactory in these instances. No justification or documentation has been provided to indicate that these occupancies have had any fire related issues specific to California.
- Chapter 5, Table 503 – Allowable Height and Building Area. The entire table (408.1.1) was developed without any supporting documentation. Without proper documentation, the proposal does not meet the State's legislated nine-point-criteria under H&S Section 18930(a).
- Table 508.3.3 – required Separation of Occupancies. The OSFM proposes to increase the required occupancy separation requirements for certain occupancies. Again, there is no justification offered to indicate that an increase in the fire resistive requirements is necessary. The OSFM proposal results in a de facto increase in the type of construction material by requiring higher fire-resistance ratings which some materials like wood may not be able to achieve. The OSFM offered no data to show that the higher fire-resistance is necessary for protection of life or property.
- Section 704.5 – Fire-Resistance Ratings. The Building Code, Urban/Wildland Interface Code, and Fire Code work in concert to provide the protection on a performance basis. The prescriptive language proposed by the OSFM unnecessarily restricts design flexibility and adds cost without any apparent benefit. The proposal will require wall assemblies to be tested for exposure to both sides even though the openings in the wall are not required to be protected and there is no fuel load permitted to be present. Contrary to IBC requirements, we see no data to indicate that the additional fire-resistive requirements are necessary.
- The code changes recommended by the OSFM to the IBC are unsubstantiated and would be costly to consumers. They would weaken a primary industry in California and require building products that most likely will be produced in other states and nations.

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Name/Organization: **Ron Nickson (National Multi Housing Council/National Apartment Association's – NMHC/NAA)**

Comments: The commercial sector, without exception, takes issue with the proposed changes to Chapter 5 concerning building height and area which included changes to the sprinkler provisions. The comments below are an expansion of the comments submitted by the commercial sector to Chapter 5, directed to the proposed changes to Section 504.2 concerning R-2 occupancies (apartments) and the use of the NFPA-13R sprinkler system.

- The modification to Section 504.2 removing the provisions that allows an extra story and an additional building height of 20-feet with the installation of an NFPA-13R sprinkler system. The extra story and 20-feet in building height allowed in the IBC has been permitted in other parts of the country for several years without any adverse impact on life safety and property protection. In fact, quite the opposite is true, as reported by Operation Life Safety after tracking fires in buildings with NFPA-13R sprinkler systems for several years and reporting no loss of life in any of the fires. The Operation Life Safety experience is supported by more recent NFPA data that shows that within the last 12 years there have been no civilian or firefighter deaths in buildings protected with an NFPA-13R sprinkler system.
- The concern of the OSFM with allowing the extra story and 20-feet in building height because it is not permitted in the existing California code and thus the California officials do not have experience on how well the NFPA-13R system works. OSFM should, however, be open to accepting the NFPA-13R sprinkler system with the extra story and 20-feet in building height, as permitted in the IBC because it has proven to be a safe, cost-effective means in other parts of the country.
- Concerns about allowable building area increase with the installation of a NFPA-13R sprinkler system are unfounded because the allowances in Section 506.3 for automatic sprinkler systems increase are permitted only with the installation of the NFPA-13 sprinkler system. The area increases permitted by Section 506.2 for frontage are allowed based on building setback and apply to buildings with or without sprinkler protection.
    - Sprinkler Effectiveness (Performance Reliability Record) – NFPA-13 vs. 13R
    - Area Modifications (Area Increases) – Discussion regarding Section 506.3
    - Area modifications (Maximum Area Determination) – Discussion regarding Section 506.4
    - Truss Construction (Roof and Floor Assemblies) – Discussion regarding 506.2, 506.3 and 506.4
    - Compartmentalization/Balanced Fire Protection - Discussion(NFPA-13 vs. 13R and Section 708.3)
    - Property Protection (Life Safety and Quick response Sprinkler Technology)
    - Four-Story Townhouses (NFPA-13 vs. 13R and IBC vs. IRC) – Sections 504.2, 903.2.7

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The OSFM deliberated at length on the issue of NFPA-13 (Standard for the Installation of Sprinkler Systems) and NFPA-13R (Standard for the Installation of Sprinkler Systems in Residential Occupancies Up to and Including Four Stories in Height) and whether or not to allow for the use of modifiers when it came to NFPA-13R sprinkler systems for Height and Area. The OSFM's Core Group examined the various IBC Sections and NFPA Standards (NFPA-13 and 13R) and reviewed the Scope and Purpose of these Standards. The NFPA-13R "Purpose" reflected sprinkler system "*that aids in the detection and control of residential fires and thus provides improved protection against injury' life loss, and property damage*". It further states "*A sprinkler system designed and installed in accordance with this standard shall be expected to prevent flashover (total involvement) in the room of fire origin, where sprinklered, and to improve the chance for occupants to escape or be evacuated*".

Another point reviewed and deliberated was the locations where fire sprinklers were not required to be installed in an NFPA-13R sprinkler system; between wall/ceiling assemblies (6.8.2), corridors and stairs that are open and attached (Section 6.84), and in attics, penthouse equipment rooms, elevator machine rooms, concealed spaces dedicated exclusively to and containing only dwelling unit ventilation equipment, crawl spaces, floor ceiling spaces, elevator shafts, and other concealed spaces that are not used or intended for living purposes or storage and do not contain fuel-fired equipment (6.8.5).

Another point discussed was the "Number of Design Sprinklers" (6.7.1.2) in a **NFPA-13R** system is "*up to a maximum of four sprinklers [2-, 3- or 4-sprinklers*" whereas; the **NFPA-13** residential system is designed with "*the minimum of four hydraulically most demanding sprinklers flowing*" (11.2.3.5.1 and 11.2.3.5.2).

While both NFPA-13 and NFPA-13R utilize the residential fire sprinkler (a quick response sprinkler by design), it was noted that while a system installed in accordance with NFPA-13R is more of a life safety system (*improve the chance for occupants to escape or be evacuated*) with some property protection capabilities, the system designed and installed in accordance with NFPA-13 is both a life safety system as well as property protection.

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Name/Organization: **Kurt Cooknick, Director of Regulation and Practice, American Institute of Architects California Council**

Comment: Opposes the OSFM proposed amendments to Height and Area provisions.

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somewhat lengthy process. The OSFM is committed to maintaining the high level of Fire and Panic Safety of its citizens and guests of this state.

Name/Organization: **Marc A. Revere, President (California Fire Chiefs Association)**

Comment: Does not support the joint OSFM and Housing and Community Development amendments to incorporate certain provisions of the International Residential Code into the International Building Code relating to fire resistance construction of walls due to location on property and fire sprinkler requirements for R-3 dwellings.

Response: While the OSFM is not the initiating agency proposing this amendment to Section 419.4 (2-hours wall between dwelling units) and feels that HCD is the agency which should be requested to respond to this particular code provision.

With regard to Section 903.2.7, the OSFM, through both it's Code Development Working Group(s) and Core Group reviewed the provisions outlined in Section 903.2.7 (IBC and IFC, 2006 Edition) and following a lengthy review and deliberation, thereof, advanced the amendment as submitted. The provisions of Section 903.2.7 (IBC and IFC) would have significantly increased the current level of protection, as outlined in the 2001 CBC/CFC for the majority of California jurisdictions and would not have had the statutory authority under present State law for such an expansion of such authority.

It is also noted that during the deliberations and review of this requirement, it was noted that the State is considering the adoption of the International Residential Code (IRC) during the next Annual Code Cycle, and that if the requirement for protection all residential occupancies (Single-Family Dwellings) is approved for the body of that code, then California would move forward with the adoption of such an amendment during those hearings for the California Residential Code to be used as the basis for the California Housing Law adopted and enforced by HCD.

It should also be pointed out that under the provisions of Section 101.8 of the CBC (proposed for 2007) a "City, County, City and County may make amendments, additions, or deletions which are more restrictive and reasonably necessary" provided that they have been supported by "Findings" based on climatic, topographical, or geological conditions. Over the years, various jurisdictions have adopted requirements for the installation of automatic fire sprinkler systems within R-3 occupancies, which will continue to be allowed under the present amendment(s) being moved forward.

Name/Organization: **Randy R. Bruegman, Fire Chief (City of Fresno F/D)**

Comment 1: Do not support the joint OSFM and Housing and Community Development amendments to incorporate certain provisions of the International Residential Code into the International Building Code relating to fire sprinkler requirements for R-3 dwellings.

Comment 2: Commenter points out a possible loophole in R-4 Occupancy requirements relating to fire sprinkler requirements.

Response 1: With regard to Section 903.2.7, the OSFM, through both it's Code Development Working Group(s) and Core Group reviewed the provisions outlined in Section 903.2.7 (IBC and IFC, 2006 Edition) and following a lengthy review and deliberation, thereof, advanced the amendment as submitted. The provisions of Section 903.2.7 (IBC and IFC) would have significantly increased the current level of protection, as outlined in the 2001 CBC/CFC for the majority of California jurisdictions and would not have had the statutory authority under present State law for such an expansion of such authority.

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sprinkler systems within R-3 occupancies, which will continue to be allowed under the present amendment(s) being moved forward.

Response 2: OSFM agrees further clarification is warranted and is proposing the following revision to 903.2.7 Exception 1.
OSFM change to accommodate as follows:

[F] 903.2.7 Group R An automatic sprinkler system installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R fire area.

> ***Exceptions:***
> *1. Detached one- and two-family dwellings and multiple single-family dwellings (town houses) not more than three stories above grade plane in height with a separate means of egress, unless specifically required by other sections of this Code or classified as Group R-4.*
> *2. Group U private garages accessory to a Group R-3 occupancy.*
> *3. Group R-3.1 occupancies not housing bedridden clients, not housing nonambulatory clients above the first floor, and not housing clients above the second floor.*
> *4. Pursuant to Health and Safety Code Section 13113 occupancies housing ambulatory children only, none of whom are mentally ill or mentally retarded, and the buildings or portions thereof in which such children are housed are not more than two stories in height, and buildings or portions thereof housing such children have an automatic fire alarm system activated by approved smoke detectors.*
> *5. Pursuant to Health and Safety Code Section 13143.6 occupancies licensed for protective social care which house ambulatory clients only, none of whom is a child (under the age of 18 years), or who is elderly (65 years of age or over).*

An automatic sprinkler system designed in accordance with Section 903.3.1.3 shall not be utilized in Group R-4.

Revised Statement of Reasons for Section 903.2.7 as follows:
OSFM is correlating this amendment which is derived from the amendment proposed to the IFC. The promulgation and format of the IBC and IFC necessitate this action. Code sections that have [F] in front of them are considered by the ICC Fire Code Development Committee for the IFC and correlated into the IBC where necessary. OSFM is following the format of the code in these instances; where the primary code is the IFC and OSFM is proposing amendments to the section, those same amendments are correlated into the IBC as amendments.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.

Name/Organization: **Jim Thomas Airport Director (Tuolumne County)**

Comment: Commenter states that current California Codes are too restrictive relating to small aircraft hangers and would like to see the inclusion of NFPA 409.

Response: OSFM is proposing adoption of 2006 IBC Section 412 which includes reference to NFPA 409 for fire suppression requirements. OSFM is proposing no additional modifications to restrict the use of these provisions.

Name/Organization: **Stephan Kiefer, Chair - State Code Committee (California Building Officials)**

Comment 1. The commenter request that the State Agencies continue the use of the agency designation banners at the California amendments. Commenter also request that all model code that is proposed for omission be retained.

Comment 2. Commenter requests the withdrawal of the amendment to the definition of “Building”.

Comment 3. Commenter requests the withdrawal of the amendment to the definition of “Building Official”.

Comments 4 through 6. Commenter has submitted several editorially revisions for sections 202, 403.9 and 507.9.

Comment 7. Commenter has submitted an editorially revision for section 705.1.2 requesting to show the entire section underline as new.

Comment 8. Commenter requests an editorially revisions for section 701A.3.2.2 to revise the language permitting the building permit to be used as the certification for compliance.

Response 1. OSFM agrees and is in the process of adding back the [SFM] designation. OSFM disagrees with retaining specific model code language that has been proposed for deletion. OSFM has omitted limited provisions of the model code to prevent the misapplication/interpretation by the user where OSFM has preemptive regulations or specific California Law prevails. OSFM believes and history has shown that retaining model code language that is not permitted in California because State law or other regulations preempt such is problematic at best and confusing for the user.

Response 2. OSFM has not amended the definition of building. OSFM is only bringing forward an existing "Note" after the IBC definition to give the user further direction to the definition found in Health and Safety Code. OSFM is only revising the existing amendment to correct the referenced section in chapter 1.

Response 3. OSFM agrees that insertion of "the Building Official's" is an error and should not be shown in the express terms. This term is a carry over from the 1997 UBC and should not have been shown. Furthermore, OSFM agrees and is withdrawing the additional OSFM amendment language proposed as a reference to section 111.
OSFM change to accommodate as follows:

BUILDING OFFICIAL The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative (Relocated from 2001 CBC 203-B) ~~*[for SFM] in accordance with state law, Health and Safety Code Section 13146, in occupancies regulated by the State Fire Marshal.*~~ ~~*For applications listed in section 111 regulated by the Office of the State Fire Marshal "Building Official" is the officer charged with the administration and enforcement of this code, or a regular deputy. See "Enforcing Agency" For the State of California, "Building Official" shall be the "Enforcing Agency" as specified in Section 111.*~~

Response 4 through 6. OSFM agrees and will be making the necessary editorial revisions in the final express terms.
OSFM change to accommodate as follows:

(Relocated from 2001 CBC 215-N) ***NONCOMBUSTIBLE. [SFM]*** *Noncombustible as applied to building construction material means a material which, in the form in which it is used, is either one of the following:*

> *1. Material of which no part will ignite and burn when subjected to fire. Any material passing ASTM 136 shall be considered noncombustible.*
> *2. Material having a structural base of noncombustible material as defined in Item 1 above, with a surfacing material not over $^{1}/_{8}$ inch (3.2 mm) thick which has a flame-spread ~~rating~~ index of 50 or less.*

"Noncombustible" does not apply to surface finish materials. Material required to be noncombustible for reduced clearances to flues, heating appliances or other sources of high temperature shall refer to material conforming to Item 1. No material shall be classed as noncombustible which is subject to increase in combustibility or flame-spread ~~rating~~ index, beyond the limits herein established, through the effects of age, moisture or other atmospheric condition

403.9 Elevators. Elevator operation and installation shall be in accordance with Chapter 30 ~~*and the following*~~*:*

Elevator lobbies shall be provided in accordance with Section 707.14.1.

507.9 Group E buildings. The area of a one story Group E building of Type II*A*, IIIA or IV construction shall not be limited when the following criteria are met:

> 1. Each classroom shall have not less than two means of egress, with one of the means of egress being a direct exit to the outside of the building complying with Section 1017.
> 2. The building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
> 3. The building is surrounded and adjoined by public ways or yards not less than 60 feet (18-288 mm) in width.

Response 7. OSFM disagrees with showing the entire section in underline format. OSFM is not proposing a new California amendment, but is only revising the terminology used to exist carry this amendment into the IBC.

Response 8. The OSFM does not believe this is an editorial revision, OSFM has not proposed modifications to this section and to do so now at this point would violate the Building Standards Law and the APA. OSFM believes that further public participation is required and public notice be given prior to making revision to sections that had not been originally noticed for proposed for amendment.

Name/Organization: **Armin Wolski, P.E. (Ove ARUP Group)**

Comment: Armin Wolski request that amendments to section 403.13.1 should be revised to specify that passive or active smoke control systems be provided. Additionally the commenter recommends removing the scoping language that would require all portions of High-rise buildings to be provided with a smoke control system.

Commenter states that without qualifying the language with the words "either passive or active", the enforcing agency assumes that the OSFM means active systems. Cost for active systems has not been justified and that in theory one may use a combination of passive and active systems. Qualifying language for "All portions" is ambiguous and vague and may include closet spaces or other small places without further revision as proposed by the commenter.

Response: OSFM agrees with points made by Mr. Woski and has revised section 403.13.1. Review of the proposed revisions and comments submitted by Armin Wolski along with follow up discussions have resulted in further modification as submitted in the 15-Day modifications. The proposed revised language is necessary to further clarify the OSFM intent for smoke control in high-rise buildings. Without qualifying the language "passive or active", the designer or enforcing agency may assume that OSFM means only active systems and in theory one may use a combination of passive and active systems. OSFM does not want to prohibit designs that may incorporate active systems or combination systems that meet the provisions in 909. Language proposed to be removed for "All portions" is broad and may include closet spaces or other small places where by design of these systems other means of compliance may be accomplished.
OSFM change to accommodate as follows:

403.13.1 Smoke Control System. ~~*All portions of h*~~*High-rise buildings shall be provided with a passive or active smoke control system or combination thereof in accordance with Section 909.*

Revised Statement of Reasons for Section 403.13.1 as follows:
OSFM is proposing these amendments to require smoke control in high-rise buildings. Smoke control systems are intended to provide a tenable environment for the evacuation or relocation of occupants. This amendment is necessary counter act the negative effectives of the stack effect (altitude, building elevation, interior and exterior temperatures) in high-rises buildings.

High-rise buildings have always presented a unique challenge to occupant safety and firefighting operations. During a fire, stack effect is often responsible for wide distribution of smoke and toxic gases in highrise buildings limiting the ability of occupants to evacuate/relocate and emergency personnel to conduct rescue and firefighting operations in a timely manner. The physics of the situation is clear: any building tall enough to develop meaningful stack, regardless of the presence of sprinklers, will transmit smoke from floor to floor in the event of fire whether the fire is controlled by sprinklers or not. An argument could be made that mechanical smoke control is only required when the driving forces of stack effect substantially exceed the capacity of the required passive barriers and their firestop systems to effectively limit the migration of smoke from the point of generation. However, this is already effectively accomplished in the opening sentence of IFC Section 909.1, which says that IFC Section 909 applies to both mechanical and passive smoke control. The required analysis of IFC Section 909.4 will reveal to the knowledgeable designer whether or not the proposed building geometry and the local climatologically conditions will permit a passive system to perform adequately or whether there is a need for mechanical system.

Since the previous model building code upon which the current CBC is based had a similar requirement, the local fire departments and fire districts have come to rely on such systems to assist them in coping with the smoke generated from unwanted fires in high-rise buildings. Their staffing levels and fire suppression and search and rescue tactics are based, in part, on the fact that a smoke control system will be provided and available for their use where necessary. This allows the responding fire departments to concentrate their efforts elsewhere, rather than having to carry up smoke exhaust fans and possibly break out exterior windows to exhaust the smoke and minimize its movement throughout the building. It is a well known fact in the fire service that, unless properly controlled, smoke moves rapidly throughout a building, even in a sprinklered fire, obscuring exit routes and causing significant property

damage. And it is very difficult to remove it from high-rise buildings which tend to have fixed window openings, thus tying up fire department personnel for significant periods of time after the fire has been extinguished, while they try to remove the smoke from the building so that it may be safely reoccupied. This fire protection feature has become instrumental for many local fire departments which rely on using the system after a fire incident in a high-rise building to assist in mopping up the smoke before they leave the fire scene.

Without smoke control systems in high-rise buildings, local fire departments and fire districts will have to increase staffing levels, readjust their mutual aid response, and develop new strategies and tactics for dealing with the smoke generated by an unwanted fire. And it is likely that fire losses due to smoke damage will significantly increase in high-rise buildings, while fire fighters and emergency responders will be put at greater risk from exposure to the vision obscuring smoke.

Pressurized stairways are designed and constructed with the goal of providing a tenable environment within the escape route in the event of a building fire. In order to address this issue comprehensively, we are reiterating current IBC provisions (IBC Sections/Table: 715.4.3, 715.4.3.1, Table 715.4 and 909.20.3.2).into these sections to address smokeproof enclosures, vestibules and opening protection required.

The requirement for a vestibule is needed to maintain an effective pressure differential between the building and the stairwell which in turn will help maintain a tenable evacuation route. A vestibule also provides a firefighting staging/operations area (which allows for hose operations without compromising the stairway). In addition, pressurized vestibules can also act as an effective area of refuge for the disabled.

OSFM is proposing to delete 909.20.4 thru 909.20.5 these provisions of the IBC which return to a long-discredited system that is neither scientifically valid nor legally supportable. This is virtually identical to the provisions that were originally incorporated in New York City Local Law 5. These provisions were challenged in the New York Supreme Court and proven to the satisfaction of the tryer of fact to be scientifically invalid and therefore thrown out. It has been demonstrated repeatedly by ASHRAE research and the scientific community, as well as by application in California and many other western states, that the provisions contained in the UBC are, in fact, the correct provisions for this vital egress system component. It can be demonstrated mathematically that the provisions proposed for deletion will not work. This is especially true in light of the fact that California requires an opening force on stair doors of no more than 15 pounds.

OSFM is proposing to amend 909.20.2.3 to address standpipes serving smokeproof enclosures. This existing amendment insures the fire hose does not compromise the required enclosure pressure differentials**.**

OSFM is proposing Section 909.20.3 as a new amendment to the IBC to address the minimum pressure differentials required for the vestibules in smokeproof enclosures.

These amendments are consistent with the previous requirements contained in the 2001 California Building Code, which will maintain the fire and life safety policy of the OSFM. These amendments do not create a change in regulatory effect.

Furthermore comments received specific to 403.13.1 during the 45-day comment period demonstrate that the proposed additional language is necessary to further clarify the OSFM intent. Without the qualifying the language “either passive or active”, the designer or enforcing agency may assume that OSFM means only active systems and in theory one may use a combination of passive and active systems. OSFM does not want to prohibit designs that may incorporate active systems or combination systems that meet the provisions in 909. Language proposed to be removed for “All portions” is broad and may include closet spaces or other small places where by design of these systems other means of compliance may be accomplished.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.

Name/Organization: **Mark Plumber, Municipal Green Building Coordinator (City and County of San Francisco, Department of Environment) and Alisdair McGregor, PE, PhD, (Ove ARUP and Partners California Ltd)**

Comment: Section 403.13.1 of the OSFM's proposed amendments (Title-24, Part 2) should be modified to permit the design of energy efficient smoke control in highrise structures. The comments further propose a change to the section that recognizes the need for energy efficient building design, balance costs and benefits, recognizing the experience with such systems over the course of the last 10-years and addressing the fire safety principles.

The use of operable windows is one of the keys in addressing energy use in buildings. High-rise office buildings have used operable windows in many areas in the world. Two significant projects that incorporate operable windows in high-rise buildings and result in energy efficiency are in climates even more severe than in California: Commerzbank in Frankfurt, Germany, and the Swiss Re Building in London, England. The proposed amendment puts the State of California behind in developing approaches to reduce building energy consumption.

Response: The OSFM disagrees for the following reasons:

- The OSFM finds that this proposal, to utilize operable windows in a high-rise building can be dangerous to the structure and its occupants and questions how the design or operation will not have an adverse affect on fire growth and automatic fire sprinkler protection. Additionally, the use of operable windows could contribute to the migration of vertical/horizontal smoke flow within the building.
- OSFM believes that further public participation is warranted prior to the inclusion of these exceptions into the code.
- The OSFM would point out that Section 909.2 (IBC, 2006 Edition), in conjunction with Section 909.4 (IBC, 2006 Edition) requires a rigorous, scientifically supportable and generally accepted engineering solution to the issues of smoke control in a building. If this analysis demonstrates that nothing more than making the floors smoke-tight and appropriately closing automatic opening protection is sufficient to accomplish the ends of smoke control in the building as set forth in Section 909.1, then nothing more need be done and no more expense need be incurred.
- These proposals could be accomplished under the provisions outlined in Section 101.8 and or 111.2.4 as proposed by OSFM for "Modifications and/or Alternative Materials, Design and Methods of Construction and Equipment" approved by the local authority having jurisdiction.
- Smoke control~~s~~ systems have been a proven means of protecting the building occupants during a fire event in a highrise building. Additionally OSFM has not received any technical substantiation for exempting the smoke control provisions.
- OSFM stands on its initial statements of reasons for advancing the amendments as originally submitted, OSFM has further expanded on the initial statements of reasons in response to comments from Armin Wolski, P.E. (Ove ARUP Group) above.

Name/Organization: **Barbara A. Schultheis, Fire Marshal (San Francisco Fire Department)**

Comment: Commenter is requesting that OSFM adopt NFPA 76 Fire Protection for Telecommunication Facilities in Chapter 35 of the CBC.

Response: The OSFM has determined that the adoption of NFPA 76 is not possible at this stage of the code adoption process. OSFM believes that further public participation and OSFM review of the standard is warranted prior to the inclusion of this NFPA 76 into the code.

The OSFM in reviewing this comments feels that NFPA-76 (Recommended Practices for the Fire Protection of Telecommunications Facilities, 2002 Edition) is an issue which is raised on an ongoing basis between the Telecommunications Industry and the various State Agencies and Local Authorities Having Jurisdiction on how best to protect these facilities and that a review of this particular standard may be appropriate for the next Annual Code Cycle.

Name/Organization: **Barbara A. Schultheis, Fire Marshal (San Francisco Fire Department)**

Comment: Commenter is requesting that OSFM adopt NFPA 130 provisions for trainways in Chapter 3 of the CBC.

Response: The OSFM has determined that the adoption of NFPA 130 is not possible at this stage of the code adoption process. OSFM believes that further public participation and OSFM review of the standard is warranted prior to the inclusion of this NFPA 130 into the code.

It should be noted that the OSFM had a Fixed Guideway Transit System Working Group formed to review the current 2001 CBC/CFC provisions for FGTS criteria and to possible update and/or adopt the latest edition of NFPA-130 (Standard for Fixed Guideway Transit and Passenger Rail Systems, 2003 Edition); however, after several months of review it was determined that the Work Group would need to be expanded to include many of the stakeholders who would be impacted by these changes. These would include, but not limited to; a) Bay Area Rapid Transit [BART], b) San Diego Trolley (MTDB), c) Santa Clara Valley Transportation Authority (VTA), d) Los Angeles County Metropolitan Transportation Authority (Metro), and e) Sacramento Regional Transit District (SRTD) to name but a few.

It is anticipated that the OSFM will be convening a Work Group to begin to revise the current adopted FGTS criteria (Section 433) and to bring forward a new adoption package built with consensus from the various stakeholder groups for the next Annual Code Cycle.

Name/Organization: **Manny Muniz (Manny Muniz Associates, LLC)**

Comment: Commenter is requesting that OSFM amend sections 411.7, 1011.4, 1011.6 and 1011.7 to address the listing of low-level exit signs and require that directional path markings be listed, clarify the power and listing requirements for internally illuminated exit signs and clarify when exit signs must be illuminated.

Response: The OSFM has determined that the amendments to 411.7, 1011.4, 1011.6 and 1011.7 are not possible at this stage of the code adoption process. Although these proposals may have merit, OSFM believes that further public participation and OSFM review is warranted prior to proposal of these amendments.

Name/Organization: **Lydia Missaelides, MHA, Executive Director (California Association for Adult Day Services - CAADS)**

Comment: The proposed regulations have a far-reaching economic and programmatic impact on many segments of California within the long term care and aging community. It is incumbent upon the Office of the State Fire Marshal to attempt to reconcile the interests of public safety with the state's compelling and articulated public policy requirement in complying with the United States Supreme Court's Olmstead decision which permits the elderly and persons with disabilities to live in and receive services in the least restrictive environment of choice.

CAADS opposes the following components of the regulations package:

- The description within the Statement of Reasons that characterize the current classification of our facilities as being "Institutional," which is inaccurate and misleading. The current occupancy classification is "Educational" and has been for at least 25 years.

- The reclassification of our facilities from E Group Occupancy to *both* I Group and R Group Occupancies which contain different and conflicting requirements. Our programs are neither residential nor institutional as programs operate less than 24 hours - usually between four and eight hours per day. Standards for these occupancies are not compatible with programs that are licensed and regulated by the State as daytime programs only. The potential for disrupting the lives of thousands of elders and families who rely on our programs for day-time services is immense, as we have already witnessed with the application of unachievable facility requirements for "non-ambulatory" persons who have been forced to move from one facility to another.

- The lack of data in the Initial Statement of Reasons to justify the cost/benefit of the installation of automatic sprinkler systems for a category of providers that, as far as we can determine, has never had a fire fatality. There is no provision for "grandfathering" existing facilities or transitioning to the new requirements.

- The lack of an analysis comparing and contrasting the current standards for each occupancy group with the new proposed standards. In our case, the changes appear to be quite significant. CAADS does not have the technical expertise to analyze the proposed building standards for the impact on our members. The "I" Group Occupancy is designed for 24-hour facilities, which are providers are not. This analysis should be performed by a third party expert with no stake in the outcome of the regulations.

- The lack of analysis of the significant economic impact the proposed regulations will have on Adult Day Programs, which are primarily small, not-for-profit adult day programs and a mix of Adult Day Health Care providers offering services that enable elderly and younger disabled adults to remain living independently at

home. In fact, the Initial Statement of Reasons states that there is no economic impact on small businesses. We assert there is a significant economic impact on small businesses that should be analyzed and presented to the Commission as part of this regulations package.

Response: With the new format and occupancy classifications in the 2006 International Building Code (IBC) OSFM has consolidated and incorporated the provisions for E (day care facilities and adult day-care facilities) into the new IBC model code format that utilizes the occupancy classification of Group I-4 (adult day care facilities) and Group E/R-3 (day care facilities). Prior to the IBC California adopted the Uniform Building Code (UBC) which did not include specific provisions for these types of facilities. OSFM created the occupancy classifications of E revisions for the California Building Code, the IBC has developed a methodology for addressing these facilities and classified them as Group I-4's.

With regard to the requirements associated with the installation of automatic fire sprinkler systems, the provisions by which existing facilities are "grandfathered", the intent of these regulations is to address requirements for new facilities/structures and not to reflect back on existing facilities which were in existence at the time these regulations are adopted (See IBC Sections 3403.1 and 3403.3 (2006 Edition).

With regard to the comment that the Group I Occupancy "is designed for 24-hour facilities", it should be pointed out that the IBC (2006 Edition), Section 308.5 specifically defines the Group I-4 Occupancy as being "occupied by persons of any age who receive custodial care for less than 24-hour by individuals other than parents or guardians."

Name/Organization: **Heather S. Harris, Vice President Public Policy (California Assisted Living Association CALA)**

Comment: Commenter opposes the reclassification of the group R2.1 occupancy of the 2001 CBC to group I-1 occupancy. States that this action is contrary to the spirit of the US Supreme Court decision in *Olmstead v. L.C.* and would be a step backwards instead of leading the promotion of a residential model rather than the institution setting.

Response: With the new format and occupancy classifications in the 2006 International Building Code (IBC) OSFM has consolidated and incorporated the provisions for R2.1, R2.3 and R6.1 occupancies into the new IBC model code format that utilizes the classification of Group I-1. Prior to the IBC California adopted the Uniform Building Code (UBC) which did not include specific provisions for these types of facilities. OSFM created the occupancy classifications of R2.1, R2.3 and R6.1 for the UBC format, the IBC has developed a methodology for addressing these facilities and classified them as Group I-1.

This change does not affect the residential nature of these uses. The IBC incorporates provisions for these facilities in the Group I-1 occupancy as follows: "Group I-1. This occupancy shall include buildings, structures or parts thereof housing clients, on a 24-hour basis, who because of age, mental disability or other reasons, live in a supervised *residential environment* that provides personal care services." (Emphasis added)

The construction provisions for Group I-1 occupancies in the IBC are similar to those currently enforced in the California Building Code (CBC) for the R2.1 occupancy. In an effort to consolidate the construction provisions that located throughout the current CBC, OSFM has carried forward those specific state amendments prescribed in California Law into the proposed new IBC Section 425.

Name/Organization: **Dr. Michael McCoy, Executive Director (California Rehabilitation Association) and Dwight Hansen (Hansen & Associates)**

Comment: Commenter states that the requirements for Group R-3 Adult Day Care and Adult Day Support and Group I-4 Adult Day Care Facilities will add excessive costs, in particular, a retrofit requirement of complex building systems including fire sprinklers. Furthermore, imposing requirements on the locations where people with disabilities can gather, receive services, and engage in their daily activities that are far greater than those required by specific disabilities of the persons receiving the services, these regulations would violate the requirements of the ADA and *Olmstead*.

Response: The commenter has not identified which provisions OSFM is proposing that would add costs. OSFM is unaware of any additional costs that may be incurred by the proposed OSFM amendments. Additional costs incurred with the adoption of a new model code are not within the scope of the OSFM rulemaking, this adoption is a non-discretionary action. Health and Safety Code 18928 mandates each state agency adopting or proposing adoption of a model code, national standard, or specification to reference the most recent edition of applicable model codes, national standards, or specifications. The proposed regulations are not retroactive in regards to the existing Adult Day Care and Adult Day Support Facilities.

With the new format, occupancy classifications and construction requirements in the 2006 International Building Code (IBC) OSFM has consolidated and incorporated the provisions for these occupancies into the new IBC model code format that utilizes the classification of Group I-4. Prior to the IBC California adopted the Uniform Building Code (UBC) that did not include specific provisions for these types of facilities. OSFM has made amendments to include specific provisions for these uses in the UBC. The IBC has developed a methodology for addressing these uses and classified them as Group I-4 or Group R-3. OSFM is bringing forward those existing amendments regarding Adult Day Care and Adult Day Support Facilities located in R-3 occupancies to continue.

Furthermore, the construction provisions for Group I-4 and R-3 occupancies in the IBC are similar to those currently enforced in the California Building Code (CBC) for the these occupancy uses. In an effort to consolidate the construction provisions located throughout the current CBC, OSFM has carried forward those specific state amendments prescribed in California Law into the proposed new IBC Sections 310, 426 and 445.

The Building Standards Commission and all other proposing State Agencies have established the 2006 IBC as the basis for the California Building Code. The proposed adoption of the new IBC model code does however bring in several new requirements for all types of occupancies and buildings. The IBC requirements are different from those of the UBC including different methodologies, uses, types of construction and materials are amongst a few, however, this is the same for all types of occupancies, uses and buildings. The proposed IBC contains requirements that are less restrictive in certain areas and more restrictive in others. The IBC utilizes a different approach than that of the UBC does.

Name/Organization: **Sharon Toji (Access Communications)**

Comment 1. Commenter request that an editorial modification be made to section 907.9.1.5 to change the term "which" to "who" when used as it relates to persons.

Comment 2. Commenter request the section 1020.1.6.2 should be revised to require tactile floor designation signs be required at all floor designations in stairways. Commenter believes that accessible signage is always required for spaces identified by numbers.

Response 1. OSFM agrees and proposes to make the editorial revision.
OSFM change to accommodate as follows:

[F] 907.9.1.5 Group I-1, R-3.1 and R-4 *Protective social care facilities which house persons ~~which~~ who are hearing impaired, shall be provided with notification appliances for the hearing impaired installed in accordance with NFPA 72 and which shall activated upon initiation of the fire alarm system or the smoke alarms.*

Response 2. OSFM disagrees, OSFM adopts regulations for many different occupancies of which some are not required to be accessible for example Group R-3 dwellings. Furthermore the term "When accessibility is required…" as used in section 1020.1.6.2 it is not a discretionary, Chapters 11A and 11B require certain buildings or portions thereof to be accessible.

Name/Organization: **Richard Skaff, Executive Director (Designing Accessible Communities) and Connie Arnold, Disability Policy Consultant**

Comment 1. Commenter states that the amendments to 907.9.1 reduce existing CBC requirements

Comment 2. Commenter request that OSFM not remove "Any other area for common use" from section 907.9.1.1.

Comment 3. Commenter states that Table 907.9.1.3 reduces existing ADAAG requirements.

Comment 4. Commenter opposes the adoption or amendments to sections 1002.1, 1003.1, 1003.3.4, 1003.5, 1007.1, 1007.2, 1007.2.1, 1007.3, 1007.4, 1007.5, 1007.5.1, 1007.6, 1007.6.1, 1007.6.2, 1007.6.3, 1007.6.3.1, 1007.6.4, 1007.6.5, 1007.7, 1007.8, 1007.8.1, 1007.8.2, 1007.8.3, 1007.9, 1008.1.8.6, 1014.4, 1014.4.1, 1114B.2, 1114B.2.1, 1114B.2.21114B.2.2.1, 1114B.2.2.2, 1114B.2.2.3, 1114B.2.2.4, 1114B.2.2.4.1, 1114B.2.2.4.2, 1114B.2.2.5 and 1114B.2.3. Commenter states, "We believe that the State of California and specifically the State Fire Marshal have not taken the appropriate measures including researching possible effective means of egress from buildings for people with disabilities. We believe that to support these provisions will allow this failure to protect the lives of persons with disabilities to continue."

Response 1. OSFM disagrees, without the deletion of the defined term "exit" and proposing to add enclosed exit stairways, exterior exit stairs, and exterior exit ramps this exception would delete the requirement for visible alarm notification appliances in exit passageways and horizontal exits. The definition of "exit" in Section 1002 includes exit passageways. Omitting visual appliances from exit passageways is inappropriate. Exit passageways can be used in the same manner as corridors. The amended language provides clarification where visual alarm notification appliances are not required in the exit and exit discharge areas. This provides consistency with NFPA 72.

Response 2. OSFM disagrees, this language for common use areas is now included in the main body of section 907.9.1.1 and is no longer needed as a separate item.

Response 3. In response to comment received during the 45-day comment period stating concerns that this section may reduce current requirements for visual and audible alarms, OSFM is proposing to make an editorial amendment to add a reference to existing requirements in Chapter 11B, Section 1111B.4.5, Table 11B-3, and Table 11B-4.

The purpose of the note is to coordinate with Chapter 11B Section 1111B.4.5 and Table 11B-3 and Table 11B-4. For occupancies required to comply with the access provisions in Chapter 11B the required number of visible and audible alarms are required for R-1 occupancies with less than 6 sleeping units. This reference adds clarification to the code for those occupancies required to comply with 11B.
OSFM change to accommodate as follows:

[F] TABLE 907.9.1.3
VISIBLE AND AUDIBLE ALARMS

NUMBER OF SLEEPING UNITS	SLEEPING UNITS WITH VISIBLE AND AUDIBLE ALARMS
6 to 25	2
26 to 50	4
51 to 75	7
76 to 100	9
101 to 150	12
151 to 200	14
201 to 300	17
301 to 400	20
401 to 500	22
501 to 1,000	5% of total
1,001 and over	50 plus 3 for each 100 over 1,000

[SFM] In addition to these requirements, see Chapter 11B Section 1111B.4.5, Table 11B-3, and Table 11B-4.

Revised Statement of Reasons for TABLE 907.9.1.3 as follows:
OSFM is correlating this amendment which is derived from the amendment proposed to the IFC. The promulgation and format of the IBC and IFC necessitate this action. Code sections that have [F] in front of them are considered by the ICC Fire Code Development Committee for the IFC and correlated into the IBC where necessary. OSFM is following the format of the code in these instances; where the primary code is the IFC and OSFM is proposing amendments to the section, those same amendments are correlated into the IBC as amendments.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.

Response 4. OSFM disagrees with the comment. It is OSFM understanding, following an in depth analysis of the building standards contained within the IBC, that the access requirements are similar to that of the current CBC or provide greater accessibility. The comment lacks specificity in identifying the adoption, amendment, or repeal of regulation that is being proposed. OSFM in coordination with DSA/AC and HCD will take the concerns expressed in this comment regarding effective means of egress from buildings for people with disabilities under consideration in the development of future rulemaking packages.

The foundation and philosophy used for the development of the fire and life safety provisions of the California Building and Fire Codes using the International Building and Fire Codes as the base document. The objective was to develop an adoption package that will include model code language from the 2006 IBC and IFC and current applicable California amendments. The process was to utilize a holistic approach to public safety when developing the state construction codes and evaluating the proposed amendments to those codes. The intent is that the final adoption package will include amendments necessary to reasonably maintain a substantially equivalent level of fire and life safety in California.

Among the decisions that were made was the extent of amendment to the IBC and IFC that the SFM would propose based on recommendations from a Core Committee and various stakeholder groups. It is the intent of the OSFM that the new CBC and CFC will provide the substantially equivalent level of protection that we have achieved in our State, when viewed holistically.

Additionally, OSFM has made every effort to coordinate the exiting, means of egress and other pertinent fire and panic safety provisions in chapters 9 and 10 with the Division of State Architect (DSA) and the Department of Housing and Community Development (HCD). DSA and HCD are the lead agencies for developing the State disabled access regulations and requirements found in the California Building Code.

Name/Organization: **Jim Abrams, CA Hotels & Lodging Association**
Thomas Daly, Hilton Hotels Corporation

Comment: OPPOSES decision not to bring forward 1114B.2.1 Exceptions 1 and 2. Will increase construction costs of both new buildings and alterations in existing buildings by requiring areas of refuge on each floor.

Response: No new code change is proposed to address this comment. Existing CBC Section 1114B.2.1, exception 1 exempts buildings or facilities having a supervised automatic sprinkler system from the requirement to provide areas of refuge. The 2006 IBC, proposed for adoption as the new model code for California, does not provide this same exception. OSFM finds no justification to reduce the requirements of the new model code even though an exemption was previously provided. Existing CBC Section 1114B.2.1, exception 2 exempts existing buildings undergoing alteration from the requirement to provide areas of refuge. The new model code does provide this same exception in Section 1007.1, exception 1, and OSFM has proposed to adopt this section.

Name/Organization: **Kevin Reinertson, Senior Deputy State Fire Marshal, Regulations Coordinator, Office of the State Fire Marshal**

Comment 1.
OSFM is further proposing amendments of this section to incorporate critical elements of the International Residential Code (IRC). During this rulemaking the Department of Housing and Community Development (HCD) was not able to propose adoption of the IRC as originally planned. The IRC and the International Building Code (IBC) contain conflicting requirements in some areas as they relate to one and two family dwellings and Group U private garages accessory to them. In an effort to transition from the IBC to a future adoption of the IRC, OSFM is incorporating amendments to correlate some of the more critical conflicts into this rulemaking.

The 2006 IRC requires exterior walls with less than a 5 ft fire separation distance to property lines to have a 1 hour fire resistance rating. The 2006 IBC does not differentiate between the different Group R occupancy classification

groups and would require 1 hour construction for exterior walls of Group R-3 dwellings with a fire separation distance of 10 ft or less to a property line.

The scope provisions contained in Section 101.2 of the 2006 IBC specify that one- and two- family dwellings and townhouses comply with the provisions of the IRC. This amendment aligns the requirement contained in the IRC with those of the IBC by clarifying that Group R-3 one- and two-family dwellings and townhouses do not need 1 hour rated exterior wall assemblies provided a fire separation distance of more that 5 feet is provided.
OSFM change to accommodate as follows:

TABLE 602
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE[a, e]

FIRE SEPARATION DISTANCE = X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP H	OCCUPANCY GROUP F-1, M, S-1	OCCUPANCY GROUP A, B, E, F-2, I, R[f], S-2, U[b,f]
X <5c	All	3	2	1
5 ≤X <10	IA Others	3 2	2 1	1 1
10 ≤X<30	IA, IB IIB, VB Others	2 1 1	1 0 1	1d 0 1d
X ≥30	All	0	0	0

For SI: 1 foot = 304.8 mm.
a. Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.
b. For special requirements for Group U occupancies see Section 406.1.2
c. See Section 705.1.1 for party walls.
d. Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.
e. The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.
f. Group R-3 and Group U when used as accessory to Group R-3, shall not be required to have a fire-resistance rating where the fire separation distance is 5 feet or more.

Revised Statement of Reasons for TABLE 602 as follows:
OSFM is proposing to bring forth existing OSFM amendments design and construction features in Group L occupancies used as laboratories for scientific experimentation or research facilities previously classified as H-8 Occupancies. This amendment is consistent with the previous requirements contained in the 2001 California Building Code, which will maintain the fire and life safety policy of the OSFM. This amendment does not create a change in regulatory effect.

OSFM is further proposing amendments of this section to incorporate critical elements of the International Residential Code (IRC). During this rulemaking the Department of Housing and Community Development (HCD) was not able to propose adoption of the IRC as originally planned. The IRC and the International Building Code (IBC) contain conflicting requirements in some areas as they relate to one and two family dwellings and Group U private garages accessory to them. In an effort to transition from the IBC to a future adoption of the IRC, OSFM is incorporating amendments to correlate some of the more critical conflicts into this rulemaking.

The 2006 IRC requires exterior walls with less than a 5 ft fire separation distance to property lines to have a 1 hour fire resistance rating. The 2006 IBC does not differentiate between the different Group R occupancy classification groups and would require 1 hour construction for exterior walls of Group R-3 dwellings with a fire separation distance of 10 ft or less to a property line.

The scope provisions contained in Section 101.2 of the 2006 IBC specify that one- and two- family dwellings and townhouses comply with the provisions of the IRC. This amendment aligns the requirement contained in the IRC with those of the IBC by clarifying that Group R-3 one- and two-family dwellings and townhouses do not need 1 hour rated exterior wall assemblies provided a fire separation distance of more that 5 feet is provided.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.

Comment 2.
The amendment is necessary to correct an editorial error made during our original submittal. OSFM is proposing to relocate the last paragraph to follow item 3 "*Automatic fire sprinkler systems"*. This editorial amendment is necessary to correct an error made during the relocation requested by the Code Advisory Committee**.** Furthermore the January 1, 2008 date needs to be removed because it is no longer applicable. This date was established by a State Fire Marshal Advisory group on the subject before California Building and Fire Code adoptions time frames were established, and inadvertently retained in subsequent submittals.
OSFM change to accommodate as follows:

[F] 904.11 Commercial cooking systems. ~~*The automatic fire-extinguishing system for commercial cooking systems shall be of a type recognized for protection of commercial cooking equipment and exhaust systems of the type and arrangement protected. Pre-engineered automatic dry- and wet-chemical extinguishing systems shall be tested in accordance with UL 300 and listed and labeled for the intended application. Other types of automatic fire-extinguishing systems shall be listed and labeled for specific use as protection for commercial cooking operations. The system shall be installed in accordance with this code, its listing and the manufacturer's installation instructions. Automatic fire-extinguishing systems of the following types shall be installed in accordance with the referenced standard indicated, as follows:*~~

~~1. Carbon dioxide extinguishing systems, NFPA 12.~~
~~2. Automatic sprinkler systems, NFPA 13.~~
~~3. Foam-water sprinkler system or foam-water spray systems, NFPA 16.~~
~~4. Dry chemical extinguishing systems, NFPA 17.~~
~~5. Wet chemical extinguishing systems, NFPA 17A~~

Commercial cooking equipment that produce grease laden vapors shall be provided with a Type I Hood, in accordance with the California Mechanical Code, and an automatic fire extinguishing system that is listed and labeled for its intended use as follows:

1. Wet chemical extinguishing system, complying with UL 300.
2. Carbon dioxide extinguishing systems,
3. Automatic fire sprinkler systems.

All existing dry chemical and wet chemical extinguishing systems shall comply with UL 300, no later than the second required servicing of the system following the effective date of this section ~~*or January 2008, which ever occurs first,*~~

Exception *Public schools kitchens, without deep-fat fryers, shall be upgraded to a UL 300 compliant system during state funded modernization projects that are under the jurisdiction of the Division of the State Architect*

All systems shall be installed in accordance with the California Mechanical Code, appropriate adopted standards, their listing and the manufacturers' installation instructions.

Exception: Factory-built commercial cooking recirculating systems that are tested*, listed, labeled and installed* in accordance with UL 710B. ~~and listed, labeled and installed in accordance with Section 304.1 of the *International Mechanical Code*.~~

~~*All existing dry chemical and wet chemical extinguishing systems shall comply with UL 300, no later than the second required servicing of the system following the effective date of this section or January 2008, which ever occurs first.*~~

Comment 3.
OSFM is proposing an editorial amendment to correct the spelling of aisles.
OSFM change to accommodate as follows:

[F] ***907.3.6*** **Protective covers.** The fire code official is authorized to require the installation of listed manual fire alarm

box protective covers to prevent malicious false alarms or to provide the manual fire alarm box with protection from physical damage. The protective cover shall be transparent or red in color with a transparent face to permit visibility of the manual fire alarm box. Each cover shall include proper operating instructions. A protective cover that emits a local alarm signal shall not be installed unless approved. *Each cover shall not exceed a combined projection over 4 inches (102 mm) from the surface of the wall into walks, halls, corridors, passageways or ~~isles~~ aisles.*

Comment 4.
The amendment is necessary to correct an error made during our original submittal. Previous versions of the CBC have contained requirements for areas of Evacuation Assistance in Chapters 11A and 11B. The 2006 IBC contains similar provisions in Chapter 10. OSFM is proposing to eliminate the requirements in Chapters 11A and 11B. This amendment is necessary to correct an error made during the relocation of the requirements from Chapter 11A to Chapter 10. The original intent was to bring this exception forward and incorporate it into Chapter 10 in the same manner the other requirements had been relocated to Chapter 10, it was inadvertently left out. OSFM is proposing to correct this error and is showing the exception as it should have been originally. The proposed amendment does not represent change in its effect from the 2001 Triennial California Building Standards Code. The exception was previously located in Section 1118A.2.2 and 1114B.2.2.2.
OSFM change to accommodate as follows:

1007.6.1 Size. Each area of refuge shall be sized to accommodate ~~one~~ *two* wheelchair space*s that are not less than* ~~of~~ 30 inches by 48 inches (762 mm by 1219 mm)*. The total number of such 30-inch by 48-inch (762 mm by 1219 mm) spaces per story shall be not less than one for every 200 persons of calculated occupant load served by the area of rescue refuge.* ~~for each 200 occupants or portion thereof, based on the occupant load of the area of refuge and areas served by the area of refuge.~~ Such wheelchair spaces shall not reduce the required means of egress width. Access to any of the required wheelchair spaces in an area of refuge shall not be obstructed by more than one adjoining wheelchair space

> ***Exception:*** *The enforcing agency may reduce the size of each required area of refuge to accommodate one wheelchair space that is not less than 30 inches by 48 inches on floors where the occupant load is less than 200.*

Revised Statement of Reasons for Section 1007.6.1 as follows:
OSFM is proposing these existing OSFM amendments to provide for area of rescue refuge. This is necessary for the compliance with federal statutes and current regulations for the number of spaces formula used in calculating such. These amendments are consistent with the previous requirements contained in the 2001 California Building Code. These amendments do not create a change in regulatory effect.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.

Comment 5.
There are no provisions in 716.5.1 Fire walls, and 716.5.2 Fire barriers, requiring ducts and air transfer openings in horizontal exit walls to be protected by anything other than fire dampers. It is currently the intent of the code to provide protection from smoke in addition to fire for horizontal exits. It appears the lack of such implementing code language is an oversight in the current code.
OSFM change to accommodate as follows:

1022.5 Ducts and air transfer openings. [SFM] *In high-rise buildings, Group A, E, H, I and L occupancies and other applications listed in Section 111 regulated by the Office of the State Fire Marshal, ducts and air transfer openings through fire walls or fire barriers, forming a horizontal exit, shall be designed and protected in accordance with Section 716 in order to afford safety from both fire and smoke in the refuge area. All ducts and air transfer openings shall be protected by listed combination fire/smoke dampers.*

Revised Statement of Reasons for Section 1022.5 as follows:
The purpose of the code change is to coordinate with proposed amendments to section 710.7, 716.5.2 and 716.5.4 to provide code language that implements the intent of Section 1002.1, definition of Horizontal Exit. Horizontal exits are intended to afford safety from both fire and smoke. No code provisions specifically require duct and air transfer

openings in horizontal exit walls to be designed and protected in order to afford safety from both fire and smoke in the refuge area. Section 1022.2 Separation, refers to sections 705 and 706 which refer to 716.5.1 and 716.5.2 There are no provisions in 716.5.1 Fire walls, and 716.5.2 Fire barriers, requiring ducts and air transfer openings in horizontal exit walls to be protected by anything other than fire dampers. It is currently the intent of the code to provide protection from smoke in addition to fire for horizontal exits. It appears the lack of such implementing code language is an oversight in the current code.

Name/Organization: **Jon Traw PE, Traw Associates Consulting**

Comment: Supports the OSFM proposed amendments to Height and Area provisions.

Response: The Office of the State Fire Marshal acknowledges the comments in support of the proposed amendments to the IBC relating to Height and Area limitations..

Name/Organization: **Patrick A Cockrum, President, PCI Industries, Inc.**

Comment: Supports the OSFM proposed amendments to Height and Area provisions.

Response: The Office of the State Fire Marshal acknowledges the comments in support of the proposed amendments to the IBC relating to Height and Area limitations..

COMMENTS RECEIVED DURING THE 15-DAY COMMENT PERIOD.
Pursuant to the requirements of Government Code Section 11346.8 (c), and Section 44 of Title 1 of the California Code of Regulations, the California Building Standards Commission provided a notice of proposed adoption by reference of the 2006 edition of the International Building Code with California Amendments into the California Code of Regulations Title 24, Part 2 which were the subject of a Notice of Proposed Action (Register 2006, Volume No. 35-Z, No. Z06-0718-04).

Subsequent to the original public comment period, text with the nonsubstantive modifications clearly indicated, was made available to the public for a 15-day public written comment period from October 26, 2006 to November 9, 2006.

Name/Organization: **Timothy J. Orris, Director of technical Services (Air Movement & Control Association International)**

The Air Movement and Control Association (AMCA) supports the Office of the State Fire Marshal's proposal to add section 1022.5. This proposal amendment correlates directly with proposed amendments to Section 710.7, 716.5.2 and 716.5.4 and meets the intent of the code to provide protection for both fire and smoke for horizontal exits.

Response: The Office of the State Fire Marshal acknowledges the comments in support of the proposal to add section 1022.5.

COMMENTS RECEIVED AFTER CLOSE OF THE PUBLIC COMMENT PERIOD:

Name/Organization: **Kenneth Rohde, AIA (For Erickson Retirement Communities)**

Comment: Section 310 (page 45), the definition of Residential Care Facilities for the Elderly should be expanded into R-4 and R-4.1. R-4.1 being independent living units within a Continuing Care Retirement Community as licensed by DSS where the operator is not providing personal care services. The R-4.1 occupancy should have the same restrictions as an R-2 (apartment) occupancy with the following additional provisions:

- Fully automatic fire sprinkler system (Full NFPA-13).
- Electronically supervised, fully annunciated fire alarm system where actual rooms or units (not zones) are identified on the main fire alarm panel as well as monitored by a central station.
- Building shall have at least one fire wall.
- Note: Remove Exception 5 from Section 504.2 for the proposed R-4.1 occupancy only and 1-1 (if issue 3 is not addressed.

Response: OSFM has reviewed the above proposed modifications/amendments to the respective sections and finds that due to the nature of the proposal to propose these various amendments forward at this point would violate the Building Standards Law and the APA. OSFM believes that further public participation is required and public notice be given prior to making revision to sections that had not been originally noticed for proposed for amendment. OSFM will take the concerns expressed under consideration in the development of future rulemaking packages.

Name/Organization: **Jack E. Christy, Director of Public Policy (Aging Services of California)**

Comment: Supports comments made by Kenneth Rohde, AIA (For Erickson Retirement Communities) which is identified above.

Response: Please see response above to comments made by Kenneth Rohde, AIA (For Erickson Retirement Communities)

Name/Organization: **Daniel Eitman, AIA, NCARB (KTGY Group, Inc.)**

Comments: Section 504.6 (CBC, 2001) governing the use of area separation walls when the total area of a building would otherwise exceed the areas permitted by Table 5-A and the increases permitted by Section 505 (CBC, 2001). The commenter believes that the 2007 CBC (as proposed by OSFM) needs to be amended (Sections 705, 705.2, and Chapter 5) to either provide for the structural integrity of the fire wall by allowing it to tie into the adjacent structures in a more substantial manner, or permit the increases to allowable area as is contained in the 2006 IBC.

The commenter requests reconsideration of the proposed amendments concerning allowable area increases in Chapter 5 and amend Section 705.2 to allow for provisions to maintain the structural integrity of the fire wall.

Response: OSFM has reviewed the above proposed modifications/amendments to the respective sections and finds that due to the nature of these proposals (not being editorial) to propose these various amendments forward at this point would violate the Building Standards Law and the APA. OSFM believes that further public participation is required and public notice be given prior to making revision to sections that had not been originally noticed for proposed for amendment. OSFM will take the concerns expressed under consideration in the development of future rulemaking packages.

Name/Organization: **Daniel Eitman, AIA, NCARB and Principal (KTGY Group, Inc.) and Wilbur Wong, AIA and Principal (KTGY Group, Inc.)**

Comments: Among the proposed amendments, the commenter is concerned about several items that were addressed at the ICC Code Development Hearings in Lake Buena Vista, Florida (09/20-10/01/06). The commenter feels that these items merit consideration for inclusion in the 2007 CBC, and are as follows:

- Sections 419 (New), 310.1, and 508.3.1 provides for the construction of units complying with provisions of the 2006 IRC.
- Sections 506.4.1, 506.4.1.1 through 506.4.1.1.4 provides clarification for mixed occupancy buildings in a configuration that is relatively common.
- Section 509.9 (New) is needed to clarify that when two or more buildings are built atop a common parking garage that the buildings above the parking garage are to be considered as distinct buildings separate from one another.
- Section 1017.3 would increase the length of the dead-end corridor to 50 feet in several occupancies where the building is equipped throughout by an automatic fire sprinkler system in accordance with Section 903.3.1.1, which would be an NFPA-13 sprinkler system.
- Sections 1015.1 and 1019.1 would permit a single exit with an increased occupant load of 16 within an individual dwelling unit in Group R-2 and R-3 occupancies if the dwelling unit is equipped throughout by an automatic fire sprinkler system in accordance with Section 903.3.1.1, which would be an NFPA-13 sprinkler system.

- Section 1014.3 would provide for an extension to the common path of egress in an R-2 occupancy to be extended to 125 feet if the building is equipped by an automatic fire sprinkler system in accordance with Section 903.3.1.1, which would be an NFPA-13 or NFPA-13R sprinkler system.

Response: OSFM has reviewed the above proposed modifications/amendments to the respective sections and finds that due to the nature of these proposals (not being editorial) to propose these various amendments forward at this point would violate the Building Standards Law and the APA. OSFM believes that further public participation is required and public notice be given prior to making revision to sections that had not been originally noticed for proposed for amendment. OSFM will take the concerns expressed under consideration in the development of future rulemaking packages.

DETERMINATION OF ALTERNATIVES CONSIDERED AND EFFECT ON PRIVATE PERSONS

(Government Code Section 11346.9(a)(4))

The Office of the State Fire Marshal has determined that no alternative considered would be more effective in carrying out the purpose for which the regulation is proposed or would be as effective and less burdensome to affected private persons than the adopted regulation.

REJECTED PROPOSED ALTERNATIVE THAT WOULD LESSEN THE ADVERSE ECONOMIC IMPACT ON SMALL BUSINESSES: (Government Code Section 11346.9(a)(5))

No proposed alternatives were received by the Office of the State Fire Marshal.

COMMENTS MADE BY THE OFFICE OF SMALL BUSINESS ADVOCATE

(Government Code Section 11347.6) [List each comment by the Trade and Commerce Agency directed at the proposed regulation or at the procedures followed by the Agency in proposing or adopting the regulation, and a response to each comment, including the basis why a comment was rejected, if applicable.]

No comments were received from the Office of Small Business Advocate.

COMMENTS MADE BY THE TRADE AND COMMERCE AGENCY

(Government Code Section 11347.6) [List each comment by the Trade and Commerce Agency directed at the proposed regulation or at the procedures followed by the Agency in proposing or adopting the regulation, and a response to each comment, including the basis why a comment was rejected, if applicable.]

No comments were received from the Trade and Commerce Agency

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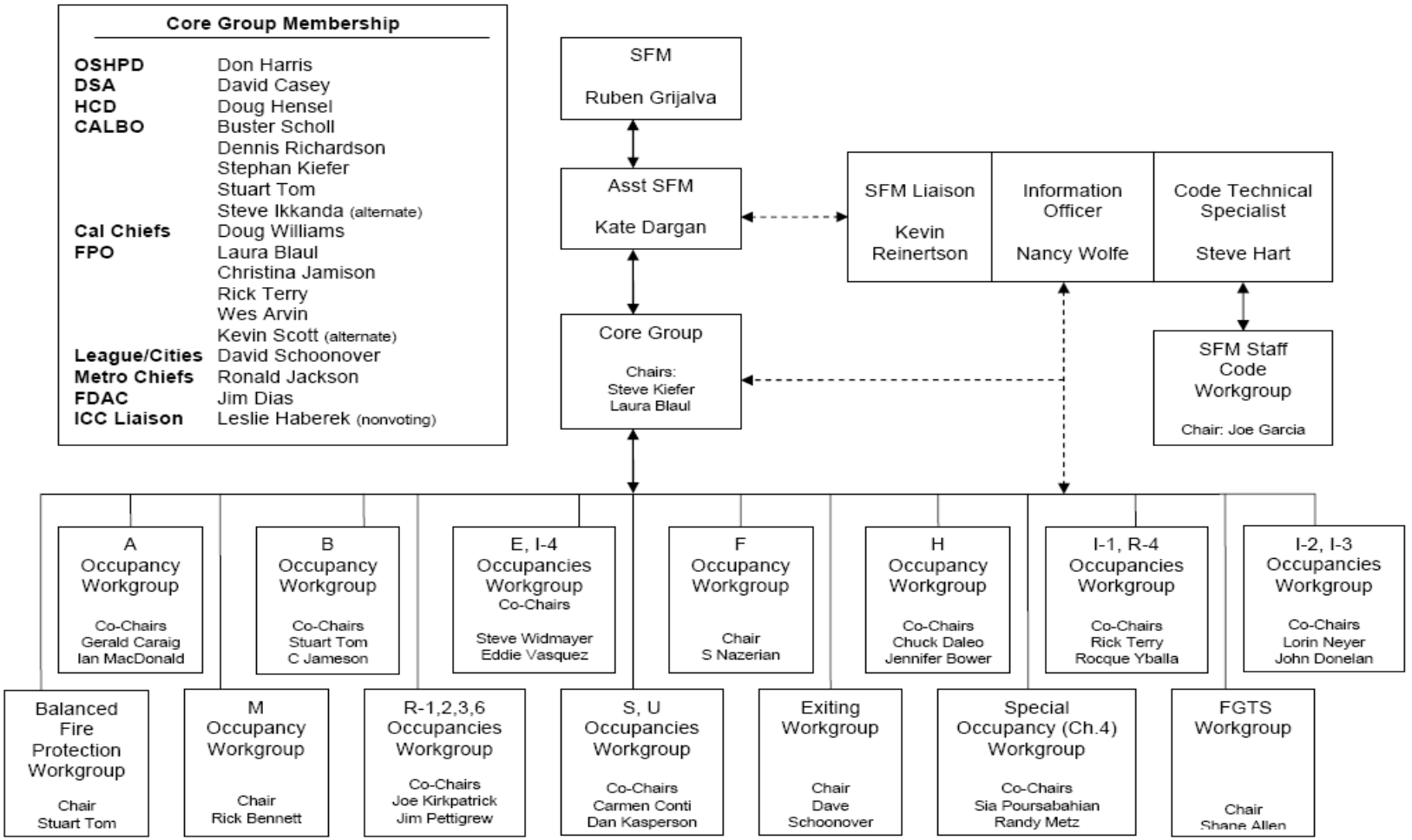
Appendix A

SFM Code Adoption Project Organization

03/01/06



Appendix B

SFM Code Adoption Project Calendar of Events		
September 2005	1	Establish project goals; assemble Core Group and Workgroup members; identify process
	6	Core Group Kickoff
	16	Initial Workgroup meeting (Irvine)
	21	Initial Workgroup meeting (Sacramento)
January 2006	5	Deadline for workgroups to submit first recommendation drafts
	9-11	Core Group review of Workgroup recommendations (Sacramento)0
	20	SFM Code Adoption Stakeholders meeting (Sacramento)
	24	Core Group Conference Call
	31	SFM Staff Workgroup meeting (Sacramento)
February 2006	1	SFM Staff Workgroup (continues)
		First draft of SFM's CBC/CFC "monograph" to be posted on website
	7	Core Group Conference Call
	10	Final date for Workgroups to submit recommendations
	13-14	Core Group/Workgroup Leaders meet to review/comment on Workgroup recommendations (SFM - Sacramento)
	21	Core Group Conference call
	22	SFM Code Adoption Stakeholders meeting (OCFA - Irvine)
	23	Core Group/Workgroup Leaders meet to review/comment on Workgroup recommendations (OCFA - Irvine)
March 2006	1	SFM posts final draft monograph of recommendations to website
	2-3	SFM to present monograph to CALBO Annual meeting
	7	Core Group Conference Call
	17	Core Group meeting to review "final package" of Workgroup recommendations (Buellton)
	21	Core Group Conference Call
	24	SFM Code Adoption Stakeholders meeting (San Jose)
April 2006	1	Final package to Chief Grijalva with Core Group recommendations; package includes identification of critical elements (e.g., height/area tables, area separations, Group L Occupancies, Group R, Division 3 Occupancies including residential care facilities, etc.)
	18	Core Group Conference Call
May 2006	2	Core Group Conference Call
	15	SFM submits proposed package to California Building Standards Commission

Appendix C

Reliability of Automatic Sprinkler Systems

William E. Koffel, P.E.

Revised January 2006[1]

Whether one is preparing a performance design or working with a prescriptive code, the reliability of fire protection systems and features must be considered. Budnick[2] explains that reliability includes both operational reliability and performance reliability. The operational reliability is a measure of the probability that a system or component will operate as intended when needed. The performance reliability is a measure of the adequacy of the system once it has operated. While critical for all fire protection features and systems, this paper will focus on the reliability of automatic sprinkler systems, in particular the operational reliability.

When the original paper on this subject was prepared by this same author, critics immediately claimed that the data was manipulated and the operational reliability of sprinkler systems was being represented as being too low. However, many of the critics failed to consider the aspects of uncertainty addressed in the paper. Since that time, NFPA has released two additional reports, the latter of which specifically confirms that the operational reliability of sprinkler systems, as reported in the original paper, accurately represented the data upon which the paper was based. The recent NFPA reports utilize more current data which cannot be combined with the original data due to differences in the reporting system. The more recent NFPA reports are included in this revised paper.

Past Studies

Table 1 provides a list of previous studies in which the reliability of automatic sprinkler systems has been documented. The scope, breadth, and reporting periods of the various studies vary significantly. One must also carefully review the scope of each study.

Table 1

Reference	Reliability of Success	Comments
Marryat[3]	99.5	Inspection, testing, and maintenance exceeded normal expectations and higher pressures
Maybee[4]	99.4	Inspection, testing, and maintenance exceeded normal expectations.

[1] There are two primary differences between this paper and earlier papers. The first is that this paper, along with the paper dated September 2005, updates the original paper using data provided in the August 2005 NFPA report (referenced later in the paper). The second change, which is a change between the September 2005 paper and this paper, is the overall reliability number for automatic sprinklers systems as reported by the current NFPA data was changed from 91% to 89%. This change occurred after discussions with Dr. Hall in which he suggested that the more correct number to use would be 89%. The 89% number is calculated using an operational reliability of 93% and a performance reliability of 96% as reported in the August 2005 NFPA report.

[2] Budnick, Edward K. , P.E., "Automatic Sprinkler System Reliability," *Fire Protection Engineering*, Society of Fire Protection Engineers, Winter 2001

[3] Marryat, H. W., *Fire: A Century of Automatic Sprinkler Protection in Australia and New Zealand 1886 – 1986,* Australia Fire Protection Association, Melbourne, Australia.

Powers[5]	98.8	Office buildings only in New York City
Powers[6]	98.4	Other than office buildings in New York City
Finucane et al.[7]	96.9 – 97.9	
Milne[8]	96.6/97.6/89.2	
NFPA[9]	88.2 – 98.2	Data provided for individual occupancies – total for all occupancies was 96.2%.
Linder[10]	96	
Richardson[11]	96	
Miller[12]	95.8	
Powers[13]	95.8	Low rise buildings in New York City
US Navy[14]	95.7	1964 – 1977
Smith[15]	95	UK data
Miller[16]	94.8	
Budnick[17]	92.2/94.6/97.1	Values are lower in commercial uses (excludes institutional and residential)
Kook[18]	87.6	Limited data base
Ramachandran[19]	87	Increases to 94 percent if estimate number of fires not reported is included and based upon 33% of fires not reported to fire brigade.
Factory Mutual[20]	86.1	1970 – 1977
Miller[21]	86	Commercial uses (excludes institutional and residential)

[4] Maybee, W. W. "Summary of Fire Protection Programs in the U.S. Department of Energy—Calendar Year 1987," U.S. Department of Energy, Frederick, MD, August 1988.
[5] Powers, R. W. "Sprinkler Experience in High-Rise Buildings (1969-1979)," *SFPE Technology Report 79-1*, Society of Fire Protection Engineers, Boston, MA, 1979.
[6] Powers, R. W., ibid
[7] Finucane, M, and Pickney, D. "Reliability of Fire Protection and Detection Systems," United Kingdom Atomic Energy Authority, University of Edinburgh, Scotland.
[8] Milne, W. D., "Automatic Sprinkler Protection Record, "*Factors in Special Fire Risk Analysis*, Chapter 9, pp. 73-89.
[9] NFPA. "Automatic Sprinkler Performance Tables, 1970 Edition," *Fire Journal*, July 1970, pp. 35-39.
[10] Linder, K. W. "Field Probability of Fire Detection Systems," Balanced Design Concepts Workshop, NISTIR 5264, R.W. Bukowski (ed.), Building and Fire Research Laboratory, National Institute of Standards and Technology, September 1993.
[11] Richardson, J. K. "The Reliability of Automatic Sprinkler Systems," *Canadian Building Digest*, Vol. 238, July 1985.
[12] Miller, M. J. "Reliability of Fire Protection Systems," *Loss Prevention ACEP Technical Manual 8*, 1974.
[13] Power, R. W., ibid.
[14] Kelly, Kevin J. "Trade Ups", *Sprinkler Quarterly*, Summer 2003
[15] Smith, Frank. "How Successful are Sprinklers," *SFPE Bulletin*, Vol. 83-2, April 1983, pp 23-25.
[16] Miller, M. J., ibid.
[17] Budnick, Edward J., ibid.
[18] Kook, K. W. "Exterior Fire Propagation in a High-Rise Building," Master's Thesis, Worcester Polytechnic Institute, Worcester, MA, November 1990.
[19] Ramachandran, Ganapathy. "The Economics of Fire Protection," New York: E & FN Spon, 1998.
[20] Kelly, Kevin J., ibid.
[21] Miller, M. J., ibid.

Oregon State Fire Marshal[22]	85.8	1970 – 1978
Taylor[23]	81.3	Limited data base

Operational Reliability

Table 1 includes both domestic and international estimates regarding the reliability of sprinklers. Many of the studies include limited data bases and are based upon experience over 15 years ago. A review of more recent fire experience in the United States indicates that the reliability of automatic sprinkler systems, while still good, may not be as high as reported by several of the studies in Table 1. In an NFPA report[24], Rohr provides considerable data regarding the fire experience in the United States in buildings protected with automatic sprinklers.

The NFPA data over a ten year reporting period regarding the operational reliability of automatic sprinkler systems can be summarized as indicated in Table 2.

Table 2

Property Use	Estimated Number of Fires with Sprinklers Present (1989-1998)	% of Fires With Sprinklers Where Sprinklers Operated
Public Assembly	30,000	73.9%
Educational	11,700	79.6%
Health Care and Correctional Facilities	41,900	80.0%
All Residential	87,500	84.6%
One- and two- family dwellings	16,900	80.0%
Apartments	50,000	87.6%
Hotels and Motels	12,900	82.7%
Department Stores	28,700	84.9%
Offices	10,700	80.6%
Industrial Facilities	4,100	85.9%
Manufacturing Facilities	49,800	91.1%
Storage Properties	9,000	84.0%
Total All Uses	273,400	83.6%

NFPA provided an update on the original report using both the original data reported in Table 2 and data for a period of one year (1999). Due to differences in the reporting system, the two data sets should not be combined. Table 3 summarizes the data as reported by NFPA using 1999 data.

Table 3

Property Use	Estimated Number of Fires with Sprinklers Present (1999)	% of Fires With Sprinklers Where Sprinklers Operated
Public Assembly	4,200	70.2%
Educational	1,810	76.2%
Health Care and Correctional	3,980	80.5%

[22] Kelly, Kevin J., ibid.
[23] Taylor, K. T. "Office Building Fires…A Case for Automatic Fire Protection," *Fire Journal*, 84(1), January/February 1990, pp. 52-54.
[24] Rohr, Kimberly, "U.S. Experience With Sprinklers," National Fire Protection Association, September 2001

Facilities		
All Residential	15,871	86.3%
One- and two- family dwellings	6,620	81.8%
Apartments	8,770	89.2%
Hotels and Motels	1,650	90.4%
Stores and Offices	5,000	
Department Stores	930	88.3%
Offices	1,520	81.1%
Industrial Facilities	500	88.3%
Manufacturing Facilities	5,910	90.7%
Storage Properties	1,690	84.5%
Other	1,300	
Total All Uses	41,480	78.8%

Although the 1999 data would indicate that the operational reliability of automatic sprinkler systems has decreased slightly from the previous ten year data base, the decrease may not be statistically significant since the data base is substantially smaller.

As with any data collection system, there are some limitations regarding the accuracy of the data. While identified as a limitation in some of the studies reported in Table 1, it should be noted that the Estimated Number of Fires with Sprinklers Present in Tables 2 and 3 do not include fires which were too small to operate a sprinkler. For example, if the incident report indicated that the fire was too small to operate a sprinkler, that data point is not included in Tables 2 and 3.

The data in Tables 2 and 3 do not include fires that are not reported to fire departments. The data does not discern whether the systems have been properly designed, installed, and maintained which would obviously increase the operational reliability of automatic sprinkler systems. Also not included is the type of sprinkler system provided and as such, it is not clear that sprinklers were present in the area of origin for all the reported fires. For example, it is possible that sprinklers were present in the building and the incident report may indicate the presence of sprinklers. However, the area of origin may not be in an area where sprinklers were present and there is no way to discern this from the data. Using an older data base, a separate NFPA report[7] indicated that fires originated in an area that was not sprinklered in partially sprinklered buildings constitute 7.8% of the sprinkler system failures.

In the August 2005 report[25], NFPA utilizes information available in the new data system to better document the fires that occur within an area where sprinklers are not present. The adjusted data in the August 2005 report deletes all data in which sprinklers were reported as not being present in the area of fire origin from the data base if sprinklers did not operate and if sprinklers operated but were not effective. The information contained in the report does not allow one to determine if this may result in overestimating sprinkler system reliability. For example, if a fire occurs in an area in which sprinklers are not present and the reference standard does not require sprinklers to be present, the incident may be eliminated from the analysis based upon the entry that sprinklers were not in the area of fire origin. This is different than the issue where the only selected areas of a building are protected and the fire occurs in a space that was not intended to be protected by automatic sprinklers.

Unfortunately the August 2005 NFPA report does not provide the same level of data as provided in previous reports. Instead, the report merely provides percentage values for the time period 1999-2002. Therefore, Table 4 does not contain the number of incidents as provided in the previous tables. The first column of percentages in Table 4, labeled “Nonadjusted,” is provided for comparison with Tables 2 and 3. The second column of percentages in Table 4, labeled “Adjusted,” provides the data as “corrected” by NFPA.

[25] Rohr, Kimberly and John R. Hall, Jr, “U.S. Experience With Sprinklers and Other Fire Extinguishing Equipment,” National Fire Protection Association, August 2005.

Where data is not provided in Table 4, the information is not provided in the August 2005 report but was provided in one of the previous reports.

Table 4

Property Use	Nonadjusted Data (1999-2002) - % of Fires With Sprinklers Where Sprinklers Operated	Adjusted Data (1999-2002) - % of Fires With Sprinklers Where Sprinklers Operated
Public Assembly	65%	90%
Educational	74%	93%
Health Care and Correctional Facilities	80%	95%
All Residential	88%	97%
One- and two- family dwellings		94%
Apartments		98%
Hotels and Motels		96%
Stores and Offices	81%	91%
Department Stores		
Offices		
Industrial Facilities		
Manufacturing Facilities	88%	93%
Storage Properties	82%	86%
Other		
Total All Uses	82%	93%

Again, the operational reliability of automatic sprinkler systems as reported by the non-adjusted data is lower than what was reported in the original paper by this author.

Performance Reliability

Performance reliability is not easily determined using NFPA fire data. Some of the studies cited in Table 1 use the number of sprinklers operating as a means of evaluating performance reliability. In a performance-based design, the ultimate evaluation may be whether the outcome is consistent with the expected performance as documented during the design process.

It is understood that most automatic sprinkler systems are designed to control a fire but not necessarily to completely extinguish the fire. The NFPA fire data supports the concept that sprinkler systems can control fires but do not necessarily result in complete extinguishment. Table 5 indicates the percentage of fires where sprinklers are present and that are reported as being extinguished by an automatic suppression

system. Note that the data includes the fires reported to be extinguished by all types of automatic suppression systems and not only those extinguished by automatic sprinkler systems. However, since automatic extinguishing systems other than sprinkler systems constitute only a tiny fraction of protected areas, it is reasonable to assume that the overall automatic extinguishing system data can be interpreted as a relatively accurate indication of sprinkler system data.

The data in Table 5 has not been updated to include the periods from 1999 through 2002. Instead, the August 2005 report indicates that when sprinkler systems operate they are effective in 96% of the incidents. Assuming the validity of the data entry used to generate this value, the August 2005 report would be a better means to measure performance reliability than the data in Table 5.

Table 5

Property Use	Estimated Number of Fires with Sprinklers Present (1989-1998)	Estimated Number of Fires reported to be Extinguished by an Automatic Suppression System (1989-1998)	Percent of Fires Extinguished by System
Public Assembly	30,000	8,000	26.7%
Educational	11,700	1,000	8.5%
Health Care and Correctional Facilities	41,900	5,000	11.9%
All Residential	87,500	17,000	19.4%
One- and two- family dwellings	16,900	3,000	17.8%
Apartments	50,000	10,000	20.0%
Hotels and Motels	12,900	2,000	15.5%
Department Stores	28,700	6,000	20.9%
Offices	10,700	2,000	18.7%
Industrial Facilities	4,100	1,000	24.4%
Manufacturing Facilities	49,800	13,000	26.1%
Storage Properties	9,000	3,000	33.3%
Total All Uses	273,400	53,000	19.4%

While property loss and life loss are greatly reduced in buildings protected with an automatic sprinkler system, the sprinkler system alone is not providing the entire increased protection.

Summary

While NFPA fire data clearly demonstrates that property loss and life loss are reduced in buildings protected throughout with an automatic sprinkler system, the same data has indicated in the past that sprinklers fail to operate 1 in every 6 fires that are large enough to activate a sprinkler. The nonadjusted data in the more recent studies indicates that the operational reliability of automatic sprinkler systems may be decreasing. However, improvements in the data collection system enable a better evaluation of the data and based upon the August 2005 NFPA report, the operational reliability of sprinkler systems may be as high as 93%.

It has been stated that unreported fires may increase the reliability of automatic sprinkler systems. However, no data has been presented to support that claim. It is common in the U.S. that current building and fire codes require the water flow alarm from an automatic sprinkler system to automatically transmit an alarm to an alarm receiving facility. This should have the effect of increasing the percentage of fires reported to fire departments in buildings protected with an automatic sprinkler system.

The original paper indicated that the uncertainty in the data could result in an operational reliability of sprinkler systems in the area of 90%. In subsequent presentations regarding the paper, this is the value that the author has used. This is the same value that is proposed to be used for sprinkler system reliability for life safety purposes in a British Standard.[26] The same British standard proposes a value of 80% for automatic sprinkler system reliability when considering property protection.

The NFPA data indicates that the commonly stated reliability of automatic sprinkler systems in the range of 96% (fails once in every 25 fires) is overstating the reliability of sprinkler systems unless there are assurances that the preventive maintenance on the system is substantially better than that on the average system in a building in which a fire has occurred. When combining the operational effectiveness and performance effectiveness data as published in the August 2005 NFPA report, the overall reliability of automatic sprinkler systems is 89%. This value is extremely close to the 90% value previously proposed by this author and the value proposed by the British Standard.

The paper was commissioned by the Alliance for Fire and Smoke Containment and Control, Inc.

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He has previous experience with the Maryland State Fire Marshal's Office and has been a volunteer firefighter.

[26] **BSI PD7974-7 (2003) –***Application of fire safety engineering principles to the design of buildings – probabilistic risk assessment*

Appendix D

Ten Largest Private Nonresidential Permitted Construction Projects in California: 2005

Number	Description	City County	Value
1	Pharmaceutical Manufacturing Facility	Vacaville Solano County	$200.0 million
2	Private Museum Building	San Francisco San Francisco County	$130.0 million
3	Office Development	Irvine Orange County	$54.8 million
4	Hotel	Westlake Village Los Angeles County	$52.0 million
5	Private Music School Building	Los Angeles Los Angeles County	$51.5 million
6	Office Development	San Diego San Diego County	$47.7 million
7	Office Development	Irvine Orange County	$47.1 million
8	Office Building	Modesto Stanislaus County	$46.4 million
9	Office Development	Irvine Orange County	$45.2 million
10	Office Development	Irvine Orange County	$45.1 million
		Total*	$719.8 million

*Note: Total for Nonresidential Permitted Construction in California was **$14.389 billion**

Reference: Construction Industry Research Board, 2006. "Building Permit Summary: California Cities and Countries Data for Calendar Year 2005." Burbank, California.

Appendix E

How will the changes to the 2006 **International Building Code** proposed by the California Office of the State Fire Marshal [OSFM] effect R-2 building costs?

With regard to multi-family buildings constructed specifically, while only a portion of R2's would be regulated by the proposed OSFM regulations, a concern exists that local jurisdictions might also adopt and apply those regulations. What then, would be the fiscal impact on projects built according to the proposed OSFM regulations - as compared to current building costs as under the current California Building Code?

To answer this, we have evaluated current allowances for Type V-1 hour buildings for R-2 (R-1 in the 2001 CBC) uses and compared those with the proposed, IBC based CBC with OSFM amendments.

Under the existing CBC, the basic area allowed for Type V-1 hour buildings for R-2 (R-1 in the 2001 CBC) is 10,500 square feet with a basic height allowance of three stories for un-sprinklered buildings. An increase can be made to four stories for such buildings if an appropriate automatic sprinkler system is used. The maximum building area allowed under the existing CBC (utilizing all of the allowable area increases permitted in the code) for this construction type and occupancy is 42,000 square feet and four stories, or 84,000 square feet for a three story building.

If the proposal from the Office of the State fire Marshal is adopted, in the parlance of the IBC code, Type V-A buildings will correspond to the existing Type V- 1 hour fire endurance rated holdings. Following the logic above and allowing for height increase or area increases, the largest possible building under the proposals being discussed will be 96,000 ft.^{2} (for a three-story building), an increase of 12,000 ft.^{2} - approximately a 14% increase in total area over what is currently allowed.

Likewise, under the provisions of the existing CBC vs. the proposed CBC with OSFM amendments, the largest possible 4 Story building of this type allowed under the proposals being considered will be 48,000 ft.^{2}, an increase of 6,000 ft.^{2} This will also provide an approximately 14% increase for the new code with proposed amendments in total area over what is currently allowed under the existing CBC .

As such, construction of either these large three or four-story apartment buildings, under the provisions of the 2006 IBC subject to the SFM H&A amendments will end up costing roughly equal or less than the same building built under the existing California Building code on a per square foot basis for the following reasons:

- The proposed new regulations allow for increases in the range of 13-14% in allowable area beyond what is *currently* allowed by the CBC.
- The proposed new regulations will not require any additional fire resistive building construction elements.
- The proposed new regulations will not require any fire safety features not currently required by the California Building Code.
- Dependent on design of included areas, costs per square foot to construct projects under the proposed code will be reduced over those associated with the current California Building Code and economy of scale issues suggest a corresponding reduction in cost per square foot based on the larger permissible areas.